As confidentially submitted to the Securities and Exchange Commission on August 10, 2018. This draft registration statement has not been publicly filed with the Securities and Exchange Commission and all information herein remains strictly confidential.

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

NGM BIOPHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**2834**	**26-1679911**
(State or other jurisdiction of incorporation or organization)	**(Primary Standard Industrial Classification Code Number)**	**(I.R.S. Employer Identification No.)**

333 Oyster Point Boulevard
South San Francisco, CA 94080
(650) 243-5555
(Address, including zip code and telephone number, including area code, of registrant's principal executive offices)

David J. Woodhouse, Ph.D.
Chief Financial Officer
NGM Biopharmaceuticals, Inc.
333 Oyster Point Boulevard
South San Francisco, CA 94080
(650) 243-5555
(Name, address, including zip code and telephone number, including area code, of agent for service)

Copies to:

Kenneth L. Guernsey
Michael E. Tenta
J. Carlton Fleming
Cooley LLP
3175 Hanover Street
Palo Alto, CA 94304
Phone: (650) 843-5000

Bruce K. Dallas
Sarah K. Solum
Davis Polk & Wardwell LLP
1600 El Camino Real
Menlo Park, CA 94025
Phone: (650) 752-2000

Approximate date of commencement of proposed sale to public: As soon as practicable after this registration statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box: ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering: ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering: ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering: ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒ (Do not check if a smaller reporting company)	Smaller reporting company	☐
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	**Proposed Maximum Aggregate Offering Price(1)(2)**	**Amount of Registration Fee**
Common Stock, $0.001 par value per share		

(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended.
(2) Includes offering price of any additional shares that the underwriters have the option to purchase.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until this Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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The information in this preliminary prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to completion. Dated , 2018

Shares

Common Stock

This is an initial public offering of shares of common stock of NGM Biopharmaceuticals, Inc. All of the shares of common stock are being sold by us.

Prior to this offering, there has been no public market for our common stock. It is currently estimated that the initial public offering price per share will be between $ and $.

We intend to apply to list our common stock on the Nasdaq Global Market under the symbol “NGM.”

We are an “emerging growth company” as defined under the federal securities laws and, as such, have elected to comply with certain reduced public company reporting requirements.

Investing in our common stock involves a high degree of risk. See “Risk Factors ” beginning on page 11 to read about factors you should consider before buying shares of our common stock.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Share	Total
Initial public offering price	$	$
Underwriting discounts and commissions(1)	$	$
Proceeds to us, before expenses	$	$

(1) We refer you to “Underwriting” beginning on page 199 for additional information regarding total underwriting compensation.

We have granted the underwriters an option to purchase up to an additional shares at the initial public offering price less the underwriting discounts and commissions.

Merck Sharp & Dohme Corp., a strategic collaborator and existing stockholder, has an option to purchase and we have an option to sell, in a separate private placement concurrent with the completion of this offering at a price per share equal to the public offering price, a number of shares of our common stock that would result in Merck owning up to approximately 19.9% of our outstanding shares of common stock following the completion of this offering. Based upon an assumed initial public offering price of $ per share, which is the midpoint of the range set forth on the cover page of this prospectus, Merck would purchase up to shares of our common stock. The sale of such shares will not be registered under the Securities Act of 1933, as amended. While we believe Merck intends to exercise this option, or, in lieu of exercise by Merck we intend to exercise this option, no binding election to exercise the option has been made by us or Merck, and accordingly Merck may purchase fewer or no shares in such private placement. The completion of this offering is not contingent upon the completion of such concurrent private placement.

The underwriters expect to deliver the shares against payment in New York, New York on , 2018.

Goldman Sachs & Co. LLC **Citigroup** **Cowen**

Prospectus dated , 2018

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We have not authorized anyone to provide you with any information other than the information contained in this prospectus or any free writing prospectus we have prepared. We take no responsibility for, and provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the shares offered hereby, but only in circumstances and in jurisdictions where it is lawful to so do. The information contained in this prospectus is accurate only as of its date, regardless of the time of delivery of this prospectus or of any sale of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

Neither we nor any of the underwriters have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. You are required to inform yourself about, and to observe any restrictions relating to, this offering and the distribution of this prospectus.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. Before investing in our common stock, you should carefully read this entire prospectus, including our consolidated financial statements and the related notes included elsewhere in this prospectus. You should also consider, among other things, the matters described under the sections titled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations," in each case included elsewhere in this prospectus. Unless otherwise stated, all references to "us," "our," "NGM," "NGM Biopharmaceuticals," "we," the "Company" and similar designations refer to NGM Biopharmaceuticals, Inc. and its subsidiary.

Overview

We are a clinical-stage biopharmaceutical company developing novel therapeutics based on our scientific understanding of key biological pathways underlying cardio-metabolic, liver, oncologic and ophthalmic diseases. These diseases are among the largest unmet medical needs globally and represent leading causes of morbidity and mortality and a significant burden for healthcare systems. Since the commencement of our operations in 2008, we have generated a robust portfolio of seven product candidates, five of which are in clinical testing. Our most advanced product candidate, NGM282, is wholly-owned and will enter Phase 2b development for the treatment of non-alcoholic steatohepatitis, or NASH, in the first quarter of 2019. In an ongoing Phase 2 clinical trial, NGM282 has demonstrated the ability to rapidly improve NASH and reverse liver fibrosis at 12 weeks. We have created this portfolio using our research and drug discovery approach that employs unbiased, *in vivo*-based discovery to identify proprietary insights into critical biological processes. We combine this approach with our protein and antibody engineering expertise to find the appropriate modality to enhance each product candidate's therapeutic potential. Our executives, directors and advisors have extensive track records of successfully discovering, developing and delivering to patients first-in-class drugs, which positions us well to maximize the potential of our drug discovery approach.

Our Collaboration with Merck

In 2015, we entered into a five-year research collaboration, product development and license agreement with Merck Sharp & Dohme Corp., or Merck. The collaboration includes an exclusive worldwide license to our growth development factor 15, or GDF15, program. Under the agreement, we also granted Merck options to take exclusive, worldwide licenses for the programs in our research and development pipeline on a program-by-program basis. Merck generally has a one-time right to exercise its option when a program completes a human proof-of-concept trial. The collaboration enables us to develop more product candidates for major indications than we could likely advance on our own, with Merck bearing a majority of the associated cost and risk. We retain an option, when a candidate has advanced to Phase 3 clinical trials, to participate in up to 50% of the economic return from that candidate if it becomes an approved medicine. Overall, the Merck collaboration provides us with robust research and development support, while we retain our research independence and the option to split costs and profits on product candidates Merck elects to advance. We excluded our fibroblast growth factor 19, or FGF19, program, including NGM282, from the agreement and it remains wholly-owned by us.

Our Approach to Drug Discovery and Development

We pursue drug discovery and development through a multi-step process geared towards translating powerful human biology into first-in-class medicines. Our founding team designed our

approach based on many decades of collective experience in successful drug development at other companies, including Amgen, Genentech and Tularik. Our process pairs a research approach that generates novel insights into pathways demonstrating powerful biological effect with the expertise in protein and antibody engineering to transform those insights into product candidates. We then rapidly advance and evaluate these product candidates to enable the demonstration of proof of concept in humans.

Our Development Programs

Our most advanced programs have focused on novel discoveries in hormone pathways that regulate cardio-metabolic processes and liver function, including those driving NASH, type 2 diabetes and obesity. We have identified multiple hormone pathways of interest, the most advanced of which are: FGF19, which plays a critical role in controlling bile acid, lipid and glucose metabolism; fibroblast growth factor receptor 1c-beta-klotho, or FGFR1c/KLB, which regulates insulin sensitivity, blood glucose and liver fat; and GDF15, which drives profound metabolic activity by regulating fuel flux and has been considered a challenging therapeutic target. We believe these hormone pathways work through distinct mechanisms and play an important role in metabolic regulation. We are currently advancing seven proprietary product candidates, as summarized below.

PRODUCT CANDIDATE	MECHANISM OF ACTION (Dosing Frequency)	POTENTIAL INDICATIONS	STAGE OF DEVELOPMENT	WORLDWIDE COMMERCIAL RIGHTS	EXPECTED UPCOMING MILESTONES
NGM282	FGF19 Analog (Once Daily)	NASH	Phase 2	NGM	Ph 2b Initiation: 1Q 2019; Interim Ph 2 Data: 2H 2019
NGM313	FGFR1c / KLB Agonistic Antibody (Once Monthly)	NASH, Type 2 Diabetes	Phase 1b	Merck Option to License	Interim Ph 1b Data: 4Q 2018
NGM386	GDF15 Analog (Once Daily)	Obesity	Phase 1	Merck License	Ph 2a Initiation: 2019
NGM395	GDF15 Analog (Long Acting)	Obesity	Preclinical	Merck License	Ph 1 Initiation: 1H 2019
NGM120	GFRAL Antagonistic Antibody (Long Acting)	Cancer Anorexia / Cachexia Syndrome (CACS)	Phase 1	Merck Option to License	Ph 1b Initiation: 1H 2019
NGM217	Undisclosed (Long Acting)	Diabetes	Phase 1	Merck Option to License	Ph 1b/2a Initiation: 2020
NGM621	Undisclosed (Long Acting)	Dry Age-Related Macular Degeneration	Preclinical	Merck Option to License	Ph 1 Initiation: 2H 2019

We are currently focused on the following programs:

- NGM282 is an engineered variant of the human hormone known as FGF19, which we are developing for the treatment of NASH. Preliminary results from Phase 2 clinical trials have provided clinical proof of concept for a once-daily injection of NGM282 by demonstrating statistically significant reductions in liver fat, liver transaminases and biomarkers of fibrosis,

which has translated into improvements on liver histology and fibrosis at 12 weeks. We expect interim data in the second half of 2019 from our ongoing placebo-controlled Phase 2 clinical trial cohort assessing the histological effects of NGM282 after 24 weeks of treatment. We excluded our FGF19 program, including NGM282, from our Merck collaboration, and it remains wholly-owned by us.

- NGM313 is an agonistic antibody selectively activating FGFR1c/KLB and has the potential to be a best-in-class insulin sensitizer for the treatment of type 2 diabetes and NASH. Preliminary data from a Phase 1b early proof-of-concept clinical trial in obese insulin resistant subjects with non-alcoholic fatty liver disease, or NAFLD, demonstrated that a single dose of NGM313 resulted in a statistically significant reduction in liver fat content and improvements in multiple metabolic parameters. Merck has a one-time option to license NGM313 upon our completion of a proof-of-concept study in humans.
- NGM386 and NGM395 are engineered variants of the human hormone known as GDF15, which we are developing with Merck for the treatment of obesity. Merck licensed our GDF15 agonist program in 2015 and is currently conducting a Phase 1 study of NGM386 in overweight or obese but otherwise healthy adults. We expect Merck to initiate a Phase 2a clinical trial of NGM386 in obese adults and a Phase 1 clinical trial of NGM395 in overweight or obese but otherwise healthy adults in 2019.
- NGM120 is an antagonistic antibody binding glial cell-derived neurotrophic factor receptor alpha-like, or GFRAL, that is designed to inhibit the effects of elevated GDF15 levels on cancer anorexia/cachexia syndrome, or CACS, and possibly, cancer. We are currently testing NGM120 in healthy volunteers in a Phase 1 clinical trial to assess its safety, tolerability and pharmacokinetic profile. We expect to initiate a Phase 1b clinical trial of NGM120 in cancer patients with CACS in the first half of 2019. Merck has a one-time option to license NGM120 upon our completion of a proof-of-concept study in humans.
- NGM217 is an antibody binding an undisclosed target that is designed to restore pancreatic islet function and increase insulin production in patients with diabetes. NGM217 is in a Phase 1 study in adults with diabetes, where we are assessing its ability to increase levels of C-peptide, a biomarker of insulin production. Merck has a one-time option to license NGM217 upon our completion of a proof-of-concept study in humans.
- NGM621 is an antibody binding an undisclosed target that is designed to decrease levels of a protein implicated in the dry form of age-related macular degeneration, or dry AMD. NGM621 is in investigational new drug, or IND, enabling studies, and we expect to begin a Phase 1 safety, tolerability and pharmacokinetics study in patients with geographic atrophy, or GA, an advanced form of dry AMD, in the second half of 2019. Merck has a one-time option to license NGM621 upon our completion of a proof-of-concept study in humans.

Our Strategy

Our strategy is to leverage our biology-centric drug discovery approach to uncover novel mechanisms of action and generate proprietary insights that will enable us to move rapidly into proof-of-concept studies and deliver to patients first-in-class medicines. Key elements of our strategy are:

- *Establish NGM282, our wholly-owned compound, as the leading treatment for NASH patients with moderate to advanced fibrosis*
- *Leverage our collaboration with Merck to advance our pipeline*

- *Grow our pipeline and extend our therapeutic areas of focus*
- *Build capabilities to deliver medicines to patients in areas of high unmet medical need*
- *Strengthen our position as a leading drug discovery and development company*

Risks Associated with Our Business

Our business is subject to numerous risks and uncertainties, including those highlighted in the section titled "Risk Factors" immediately following this prospectus summary. Some of those risks are:

- we have incurred net losses every year since our inception, expect to incur significant and increasing operating losses and may never be profitable;
- we may need to acquire additional capital to finance our operations, which may not be available to us on acceptable terms, or at all;
- substantially all of our revenue for recent periods has been received from a single collaboration partner;
- we currently have no approved products or product revenue, and we will need to successfully complete preclinical and clinical testing of our product candidates before we can seek regulatory approval and potentially generate commercial sales;
- our future success depends in part on our ability to attract and retain highly skilled employees, including members of our current senior management team, especially Dr. Jin-Long Chen, and our scientific advisors;
- clinical trials of our product candidates may fail to demonstrate safety and efficacy to the satisfaction of regulatory authorities or otherwise produce positive results;
- we depend on our collaboration with Merck and may depend on collaborations with additional third parties for the development and commercialization of our product candidates.
- the regulatory approval processes of the U.S. Food and Drug Administration, or FDA, and comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable;
- our success depends upon our ability to obtain, maintain, defend and enforce intellectual property protection for our products and technologies, and we may not be able to protect our intellectual property rights throughout the world; and
- we may not be able to obtain and maintain the third-party relationships that are necessary to develop, commercialize and manufacture some or all of our product candidates.

Concurrent Private Placement

Merck, a strategic collaborator and existing stockholder, has an option to purchase and we have an option to sell, in a separate private placement concurrent with the completion of this offering at a price per share equal to the public offering price, a number of shares of our common stock that would result in Merck owning up to approximately 19.9% of our outstanding shares of common stock following the completion of this offering. Based upon an assumed initial public offering price of $ per share, which is the midpoint of the range set forth on the cover page of this prospectus, Merck would purchase up to shares of our common stock. The sale of such shares will not be registered under the Securities Act of 1933, as amended, or the Securities Act. While we believe Merck

intends to exercise this option, or, in lieu of exercise by Merck we intend to exercise this option, no binding election to exercise the option has been made by us or Merck, and accordingly Merck may purchase fewer or no shares in such private placement. The completion of this offering is not contingent upon the completion of such concurrent private placement.

Corporate History and Information

We were incorporated in Delaware in December 2007 and commenced operations in 2008. Our principal executive offices are located at 333 Oyster Point Blvd., South San Francisco, CA 94080-7014, and our telephone number is (650) 243-5555. Our website address is http://www.ngmbio.com. The information contained in, or that can be accessed through, our website is not part of this prospectus.

NGM and the NGM logo are our trademarks. Each of the other trademarks, trade names or service marks appearing in this prospectus belong to their respective holders.

Implications of Being an Emerging Growth Company

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or JOBS Act. We will remain an emerging growth company until the earliest to occur of: the last day of the fiscal year in which we have more than $1.07 billion in annual revenue; the date we qualify as a “large accelerated filer,” with at least $700 million of equity securities held by non-affiliates; the issuance, in any three-year period, by us of more than $1.0 billion in non-convertible debt securities; and the last day of the fiscal year ending after the fifth anniversary of our initial public offering. As a result of this status, we have taken advantage of reduced reporting requirements in this prospectus and may elect to take advantage of other reduced reporting requirements in our future filings with the SEC. In particular, in this prospectus, we have provided only two years of audited consolidated financial statements and have not included all of the executive compensation-related information that would be required if we were not an emerging growth company. In addition, the JOBS Act provides that an emerging growth company may take advantage of an extended transition period for complying with new or revised accounting standards, delaying the adoption of these accounting standards until they would apply to private companies. We have elected to avail ourselves of this exemption and, as a result, will not be subject to the same implementation timing for new or revised accounting standards as for other public companies that are not emerging growth companies, which may make comparison of our financials to those of other public companies more difficult.

The Offering	
Common stock offered by us	shares
Proposed concurrent private placement to Merck	Merck has an option to purchase and we have an option to sell, in a separate private placement concurrent with the completion of this offering at a price per share equal to the public offering price, a number of shares of our common stock that would result in Merck owning up to approximately 19.9% of our outstanding shares of common stock following the completion of this offering. Based upon an assumed initial public offering price of $ per share, which is the midpoint of the range set forth on the cover page of this prospectus, Merck would purchase up to shares of our common stock. While we believe Merck intends to exercise this option, or, in lieu of exercise by Merck we intend to exercise this option, no binding election to exercise the option has been made by us or Merck, and accordingly Merck may purchase fewer or no shares in such private placement.
Common stock to be outstanding after the offering and the proposed concurrent private placement to Merck	shares
Underwriters' option to purchase additional shares of common stock	shares
Use of proceeds	We estimate that our net proceeds from this offering, excluding the proceeds from the proposed concurrent private placement to Merck, will be approximately $ million, or approximately $ million if the underwriters exercise in full their option to purchase additional shares of our common stock, after deducting underwriting discounts and commissions and estimated offering expenses payable by us. Additionally, we estimate that our net proceeds from the proposed concurrent private placement to Merck will be approximately $ million. We intend to use the net proceeds from this offering and the proposed concurrent private placement to Merck to fund development of the NGM282 program and related product candidates, to fund the development of our other programs, including our early-stage drug discovery programs, to fund pre-commercialization activities and for working

	capital and other general operating expenses. See “Use of Proceeds” for more detailed information.
Directed share program	At our request, the underwriters have reserved up to shares being offered by this prospectus for sale at the initial public offering price to certain of our directors, officers, employees, business associates and related persons. The number of shares available for sale to the general public will be reduced by the number of directed shares purchased by participants in the program. Any directed shares not purchased will be offered by the underwriters to the general public on the same basis as all other shares offered.
Risk factors	See “Risk Factors” beginning on page 11 and the other information included in this prospectus for a discussion of factors you should carefully consider before deciding to invest in our common stock.
Proposed symbol on the Nasdaq Global Market	“NGM”

The number of shares of our common stock outstanding after the offering is based on 107,184,644 shares of our common stock outstanding as of June 30, 2018 (including convertible preferred stock then outstanding on an as-converted basis), and excludes:

- 19,398,203 shares of our common stock issuable upon the exercise of stock options outstanding as of June 30, 2018 at a weighted-average exercise price of $2.70 per share;
- 39,274 shares of our common stock (on an as-converted basis) issuable upon exercise of an outstanding Series A convertible preferred stock warrant at an exercise price of $1.00 per share, of which all shares are currently exercisable;
- shares of our common stock (including 1,193,038 shares of our common stock reserved for future issuance under our 2018 Equity Incentive Plan, or the 2018 Plan, as of June 30, 2018), reserved for future issuance under our amended and restated 2018 Plan, or the Restated 2018 Plan, which will become effective immediately prior to the completion of this offering, as well as any automatic increase in the number of shares of common stock reserved for future issuance under this benefit plan;
- shares of our common stock to be reserved for future issuance under our 2018 Employee Stock Purchase Plan, or the ESPP, which will become effective immediately prior to the completion of this offering, as well as any automatic increase in the number of shares of common stock reserved for future issuance under this benefit plan; and
- 73,503 shares of our common stock reserved for future issuance under our NGM Biopharmaceuticals Matching Plan, or the 401(k) Matching Plan, as of June 30, 2018.

Except as otherwise noted, we have presented the information in this prospectus based on the following assumptions:

- the conversion, in accordance with our existing amended and restated certificate of incorporation, of all shares of convertible preferred stock outstanding as of June 30, 2018 into

94,534,932 shares of our common stock, which will occur immediately prior to the completion of this offering;

- the automatic conversion of an outstanding warrant exercisable for shares of our Series A convertible preferred stock into a warrant exercisable for 39,274 shares of our common stock, which will occur immediately prior to the completion of this offering;
- no exercise by the underwriters of their option to purchase up to an additional shares of our common stock in the offering;
- no exercise of outstanding stock options; and
- the filing and effectiveness of our amended and restated certificate of incorporation with the Secretary of State of the State of Delaware and the adoption of our amended and restated bylaws, each of which will occur upon the completion of the offering.

Summary Consolidated Financial Data

The following tables summarize our financial data and should be read together with the sections titled “Selected Consolidated Financial Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated financial statements and related notes and condensed consolidated financial statements and related notes included elsewhere in this prospectus.

We have derived the summary consolidated statement of operations data for the years ended December 31, 2016 and 2017 from our audited consolidated financial statements included elsewhere in this prospectus. We have derived the condensed consolidated statement of operations data for the six months ended June 30, 2017 and 2018 and the condensed consolidated balance sheet data as of June 30, 2018 from our unaudited interim condensed consolidated financial statements included elsewhere in this prospectus. We have prepared the unaudited condensed consolidated financial statements on the same basis as the audited consolidated financial statements and have included, in our opinion, all adjustments consisting only of normal recurring adjustments that we consider necessary for a fair presentation of the financial information set forth in those statements. Our historical results are not necessarily indicative of the results that should be expected in the future, and our unaudited interim results are not necessarily indicative of the results that should be expected for the full year or any other period.

	Year Ended December 31,		Six Months Ended June 30,	
	2016	2017	2017	2018
			(unaudited)	
	(in thousands, except share and per share amounts)			
Related party collaboration revenue	$ 81,435	$ 77,141	$ 37,918	$ 40,731
Other collaboration revenue	4,154	—	—	—
Total collaboration revenue	85,589	77,141	37,918	40,731
Operating expenses:				
Research and development	82,105	79,736	40,645	42,300
General and administrative	11,845	14,830	7,643	7,332
Total operating expenses	93,950	94,566	48,288	49,632
Loss from operations	(8,361)	(17,425)	(10,370)	(8,901)
Interest income	1,806	2,358	1,048	1,643
Other income (expense), net	133	(152)	(154)	117
Net loss before taxes	(6,422)	(15,219)	(9,476)	(7,141)
Provision for (benefit from) income taxes	500	(1,060)	—	—
Net loss	$ (6,922)	$ (14,159)	$ (9,476)	$ (7,141)
Net loss per common share, basic and diluted(1)	$ (0.63)	$ (1.19)	$ (0.80)	$ (0.58)
Weighted average shares used to compute net loss per common share, basic and diluted(1)	11,064,520	11,923,534	11,774,231	12,326,850
Pro forma net loss per common share, basic and diluted (unaudited)(1)		$ (0.13)		$ (0.07)
Weighted average shares used to compute pro forma net loss per common share, basic and diluted (unaudited)(1)		106,458,466		106,861,782

(1) See Note 2 to our consolidated financial statements and condensed consolidated financial statements appearing elsewhere in this prospectus for an explanation of the method used to calculate the historical and pro forma basic and diluted net loss per share and the number of shares used in the computation of the per share amounts.

	As of June 30, 2018 (unaudited) (in thousands)		
	Actual	Pro Forma(1)	Pro Forma As Adjusted(2)
Consolidated balance sheet data:			
Cash, cash equivalents, and short-term marketable securities	$ 189,227	$ 189,227	$
Working capital (excluding deferred revenue)	173,395	173,395	
Total assets	237,563	237,563	
Total liabilities	66,138	66,138	
Convertible preferred stock warrant liability	121	—	—
Convertible preferred stock	294,874	—	—
Accumulated deficit	(153,841)	(153,841)	
Total stockholders' equity (deficit)	(123,449)	171,546	

(1) The pro forma column reflects the automatic conversion of all outstanding shares of our convertible preferred stock into shares of our common stock immediately prior to the completion of this offering and the reclassification to additional paid-in capital of our Series A convertible preferred stock warrant liability in connection with the conversion of our outstanding Series A convertible preferred stock warrant into a common stock warrant upon the completion of this offering.

(2) The pro forma as adjusted column further reflects the receipt of the estimated net proceeds from the sale of shares of common stock in this offering and the proposed concurrent private placement to Merck at an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) the amount of cash, cash equivalents and short-term marketable securities, working capital, total assets and total stockholders' equity (deficit) by approximately $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, along with the number of shares to be sold to Merck in the proposed concurrent private placement, remain the same and after deducting underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase (decrease) of 1,000,000 shares in the number of shares of our common stock offered by us would increase (decrease) the amount of cash, cash equivalents and short-term marketable securities, working capital, total assets and total stockholders' equity by approximately $ million, assuming that the assumed initial public offering price remains the same, after deducting underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual initial public offering price and the other terms of this offering determined at pricing.

RISK FACTORS

Investment in our common stock involves a high degree of risk and uncertainty. You should carefully consider each of the risks and uncertainties described below before you decide to buy our common stock. You should also refer to the other information in this prospectus, including our consolidated financial statements and related notes. If any of the following risks and uncertainties materialize, our business, financial condition, liquidity and results of operations could be materially and adversely affected. This could cause the trading price of our common stock to decline, and you could lose all or part of your investment.

Risks Related to Our Financial Results and Capital Needs

We have incurred net losses every year since our inception, expect to incur significant and increasing operating losses and may never be profitable. Our stock is a highly speculative investment.

We are a clinical-stage biopharmaceutical company that was incorporated in December 2007 and commenced operations in early 2008. Investment in biopharmaceutical product development is highly speculative because it entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate effect and/or an acceptable safety profile, gain regulatory approval and become commercially viable. We have no products approved for commercial sale and have not generated any revenue from product sales to date, and we continue to incur significant research and development and other expenses related to our ongoing operations. As a result, we are not profitable and have incurred losses in each period since commencing operations in early 2008. Our net loss was $6.9 million, $14.2 million and $7.1 million for the years ended December 31, 2016 and 2017 and the six months ended June 30, 2018, respectively. As of June 30, 2018, we had an accumulated deficit of $153.8 million.

We have spent, and expect to continue to spend, significant resources to fund research and development of, and seek regulatory approvals for, our product candidates. We expect to incur substantial and increasing operating losses over the next several years as our research, development, preclinical testing and clinical trial activities increase. As a result, our accumulated deficit will also increase significantly. We may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue beyond those generated pursuant to the Merck collaboration. Our prior losses and expected future losses have had and will continue to have an adverse effect on our stockholders' equity and working capital. Even if we eventually generate product revenue, we may never be profitable and, if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis.

Substantially all of our revenue for recent periods has been received from a single collaboration partner.

During the past two years, substantially all of our revenue was from our collaboration partner, Merck. We will require substantial additional capital to achieve our development and commercialization goals for NGM282, for any Merck licensed programs that we opt to co-develop and for any programs that Merck does not opt to develop and that we choose to develop. Under the Merck collaboration, Merck provides us with reimbursement for research and development activities of at least $50 million per year, plus additional amounts up to agreed upon annual caps, if certain conditions are met; however, we may require additional funding to advance our research and development affairs on our planned timeline, or at all. If our Merck collaboration were to be terminated, or if the annual cap under

the Merck collaboration is insufficient, we could require significant additional capital in order to proceed with development and commercialization of our product candidates, or we may require additional partnering in order to help fund such development and commercialization. The research and early development program has an initial term of five years, through March 17, 2020, and Merck has the right to extend this period through March 17, 2022 and thereafter to extend it again through March 17, 2024. If adequate funds or partners are not available to us on a timely basis, on favorable terms or at all, we may be required to delay, limit, reduce or terminate our research and development efforts or other operations. See “Business—Our Collaboration with Merck.”

We currently have no source of product revenue and may never become profitable.

Our product candidates are in the early stages of development. To date, we have not generated any revenue from commercialization of our product candidates. We will not be able to generate product revenue unless and until one of our product candidates, alone or with our partners, successfully completes clinical trials, receives regulatory approval and is successfully commercialized. As our product candidates are in early stages of development, we do not expect to receive revenue from those product candidates for a number of years, if ever. We may seek to obtain revenue from collaboration or licensing agreements with third parties. Other than our agreement with Merck, we currently have no such agreements that could provide us with material, ongoing future revenue and we may never enter into any such agreements. Our ability to generate future product revenue from our current or future product candidates also depends on a number of additional factors, including our or our current and future partners’ ability to:

- successfully complete research and clinical development of current and future product candidates;
- establish and maintain supply and manufacturing relationships with third parties, and ensure adequate and legally compliant manufacturing of bulk drug substances and drug products to maintain that supply;
- launch and commercialize future product candidates for which we obtain marketing approval, if any, and, if launched independently, successfully establish a sales force, marketing and distribution infrastructure;
- demonstrate the necessary safety data post-approval to ensure continued regulatory approval;
- obtain coverage and adequate product reimbursement from third-party payors, including government payors;
- achieve market acceptance for our or our partners’ products, if any;
- establish, maintain, protect and enforce our intellectual property rights; and
- attract, hire and retain qualified personnel.

In addition, because of the numerous risks and uncertainties associated with pharmaceutical product development, including that our product candidates may not advance through development or achieve the endpoints of applicable clinical trials, we are unable to predict the timing or amount of increased expenses, or if or when we will achieve or maintain profitability. In addition, our expenses could increase beyond expectations if we decide, or are required by the FDA or foreign regulatory authorities, to perform studies or trials in addition to those that we currently anticipate. Even if we complete the development and regulatory processes described above, we anticipate incurring significant costs associated with launching and commercializing these products.

Even if we generate revenue from the sale of any of our products that may be approved, we may not become profitable and may need to obtain additional funding to continue operations. If we fail to

become profitable or do not sustain profitability on a continuing basis, then we may be unable to continue our operations at planned levels and be forced to reduce our operations.

We may require additional capital to finance our operations, which may not be available to us on acceptable terms, or at all. As a result, we may not complete the development and commercialization of our product candidates or develop new product candidates.

As a research and development company, our operations have consumed substantial amounts of cash since inception. We expect our research and development expenses to increase substantially in connection with our ongoing activities, particularly to the extent that product candidates whose costs are not borne by our collaborator, such as NGM282, advance in clinical development. We believe that the net proceeds from this offering and the proposed concurrent private placement to Merck, together with our existing cash, cash equivalents and short-term marketable securities and funding we expect to receive under our existing collaboration agreement, will fund our projected operating requirements for at least the next twelve months. Our forecast of the period of time through which our financial resources will adequately support our operations is a forward-looking statement and involves risks and uncertainties, and actual results could vary as a result of a number of factors, including the factors discussed elsewhere in this “Risk Factors” section. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect. Our future funding requirements, both short and long-term, will depend on many factors, including:

- the initiation, progress, timing, costs and results of preclinical and clinical studies for our product candidates and future product candidates we may develop;
- whether Merck exercises its option to license product candidates upon our completion of a proof-of-concept study in humans;
- whether Merck terminates the research collaboration (under pre-specified circumstances in the collaboration agreement) or terminates a program that is licensed;
- whether Merck exercises either or both of its options to extend the research phase of its collaboration with us, each of which would trigger an extension payment to us;
- the outcome, timing and cost of seeking and obtaining regulatory approvals from the FDA and comparable foreign regulatory authorities, including the potential for such authorities to require that we perform more studies than those that we currently expect or change their requirements on studies that had previously been agreed to;
- the cost to establish, maintain, expand, enforce and defend the scope of our intellectual property portfolio, including the amount and timing of any payments we may be required to make, or that we may receive, in connection with licensing, preparing, filing, prosecuting, defense and enforcement of any patents or other intellectual property rights;
- the effect of competing technological and market developments;
- market acceptance of any approved product candidates, including product pricing and product reimbursement by third-party payors;
- the cost of acquiring, licensing or investing in additional businesses, products, product candidates and technologies;
- the cost and timing of selecting, auditing and potentially validating a manufacturing site for commercial-scale manufacturing;
- the cost of establishing sales, marketing and distribution capabilities for our product candidates for which we may receive regulatory approval and that we determine to commercialize ourselves or in collaboration with our partners; and
- the extent to which any of the foregoing costs are the responsibility of Merck.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our technologies.

Unless and until we can generate a sufficient amount of revenue from our products, we will require additional capital to discover, develop, obtain regulatory approval for and commercialize our current and future product candidates. We do not have any committed external source of funds, other than pursuant to our collaboration with Merck, which is limited in scope and duration, and may be terminated in certain circumstances. We expect to finance future cash needs through public or private equity or debt offerings or product collaborations. Additional capital may not be available in sufficient amounts or on reasonable terms, if at all. Our existing stockholders could suffer dilution or be negatively affected by fixed payment obligations we may incur if we raise additional funds through the issuance of additional equity securities or debt. Furthermore, these securities may have rights senior to those of our common stock and could contain covenants or protective rights that would restrict our operations and potentially impair our competitiveness, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we need to secure additional financing, such additional fundraising efforts may divert our management and research efforts from our day-to-day activities, which may adversely affect our ability to develop and commercialize future product candidates. If we do not raise additional capital, we may not be able to expand our operations or otherwise capitalize on our business opportunities, our business and financial condition will be negatively impacted and we may need to:

- significantly delay, scale back or discontinue research and discovery efforts and the development or commercialization of any product candidates or cease operations altogether;
- seek strategic alliances for research and development programs when we otherwise would not, or at an earlier stage than we would otherwise desire or on terms less favorable than might otherwise be available; or
- relinquish, or license on unfavorable terms, our rights to technologies or any product candidates that we otherwise would seek to develop or commercialize ourselves.

If we need to conduct additional fundraising activities, but are unable to do so, we may be prevented from pursuing development and commercialization efforts, which will have a material adverse effect on our business, operating results and prospects.

To the extent we obtain additional funding through product collaborations, these arrangements would generally require us to relinquish rights to some of our technologies, product candidates or products, and we may not be able to enter into such agreements, on acceptable terms, if at all. If we are unable to obtain additional funding on a timely basis, we may be required to curtail or terminate some or all of our development programs or product candidates.

We plan to use current year operating losses and our federal and state net operating loss, or NOL, carryforwards to offset taxable income from revenue generated from operations including corporate collaborations. However, our ability to use NOL carryforwards could be limited.

We plan to use our current year operating losses to offset taxable income from any revenue generated from operations, including corporate collaborations. To the extent that our taxable income exceeds any current year operating losses, we plan to use our NOL carryforwards to offset income that would otherwise be taxable. However, under Section 382 of the U.S. Internal Revenue Code of 1986, as amended, the amount of benefits from our NOL carryforwards may be impaired or limited if we incur a cumulative ownership change of more than 50%, as interpreted by the U.S. Internal Revenue Service, over a three-year period. We may have experienced ownership changes in the past and may experience ownership changes in the future as a result of this offering and subsequent shifts in our

stock ownership, some of which are outside our control. As a result, our use of federal NOL carryforwards could be limited. State NOL carryforwards may be similarly limited. Any such disallowances may result in greater tax liabilities than we would incur in the absence of such a limitation and any increased liabilities could adversely affect our business, results of operations, financial position and cash flows.

Risks Related to Our Business and Industry

Our product candidates must undergo rigorous clinical trials and regulatory approvals, which could delay or prevent commercialization of our product candidates.

All of our product candidates will be subject to rigorous and extensive clinical trials and extensive regulatory approval processes implemented by the FDA and similar regulatory bodies in other countries. The approval process is typically lengthy and expensive, and approval is never certain. We or our collaborator, if any, may delay, suspend or terminate clinical trials at any time for reasons including:

- ongoing discussions with the FDA or comparable foreign authorities regarding the scope or design of our clinical trials;
- delays in obtaining, or the inability to obtain, required approvals from institutional review boards or other governing entities at clinical sites selected for participation in our clinical trials;
- delays in enrolling participants into clinical trials;
- lower than anticipated retention rates of participants in clinical trials;
- implementation of new, or changes to, guidance or interpretations from the FDA or comparable foreign authorities with respect to approval pathways for product candidates we are pursuing;
- the need to repeat clinical trials as a result of inconclusive or negative results or poorly executed testing or changes in required endpoints by the FDA or comparable foreign authorities;
- insufficient supply or deficient quality of product candidate materials or other materials necessary to conduct our clinical trials;
- unfavorable FDA inspection and review of a clinical trial site or records of any clinical or preclinical investigation;
- serious and unexpected drug-related adverse effects experienced by participants in our clinical trials; or
- the placement of a clinical hold on a trial by the FDA or comparable foreign authorities.

Positive or timely results from preclinical studies and early clinical trials do not ensure positive or timely results in late-stage clinical trials or product approval by the FDA or any other regulatory authority. Product candidates that show positive preclinical or early clinical results often fail in later stage clinical trials. Data obtained from preclinical and clinical activities is susceptible to varying interpretations, which could delay, limit or prevent regulatory approvals.

We have no experience in conducting the late-stage clinical trials required to obtain regulatory approval. We may not be able to conduct clinical trials at preferred sites, enlist clinical investigators, enroll sufficient numbers of participants or begin or successfully complete clinical trials in a timely fashion, if at all. Our current clinical trials may be insufficient to demonstrate that our potential products will be active, safe or effective. Additional clinical trials may be required if clinical trial results are negative or inconclusive, which will require us to incur additional costs and significant delays. If we do not receive the necessary regulatory approvals, we will not be able to generate product revenue and may not become profitable.

If clinical trials of our product candidates fail to demonstrate safety and efficacy to the satisfaction of regulatory authorities or do not otherwise produce positive results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.

Before obtaining marketing approval from regulatory authorities for the sale of future product candidates, we or our partners must conduct extensive preclinical studies and clinical trials to demonstrate the safety and efficacy of the product candidates in humans. Preclinical studies and clinical trials are expensive, will take several years to complete and may not yield results that support further clinical development or product approvals. A failure of one or more clinical trials can occur at any stage of testing. The outcome of preclinical studies and early clinical trials may not predict the success of later clinical trials, and interim results of a clinical trial do not necessarily predict final results. A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in advanced clinical trials due to lack of efficacy or unacceptable safety profiles, notwithstanding promising results in earlier trials.

To date, the data supporting our drug discovery and development programs are derived from laboratory and preclinical studies and earlier-stage clinical trials. Despite the results reported in our Phase 1 and 2 clinical trials for NGM282, in Phase 1 clinical trials for NGM313 and in preclinical studies for our other product candidates, future clinical trials in humans may show that one or more of our product candidates are not safe and effective, in which event we may need to abandon development of such product candidates. It is impossible to predict when or if any of our product candidates will prove effective or safe in humans or will receive regulatory approval. Owing in part to the complexity of biological pathways, these compounds might not demonstrate in patients the biochemical and pharmacological properties we anticipate based on laboratory studies or earlier-stage clinical trials, and they may interact with human biological systems or other drugs in unforeseen, ineffective or harmful ways.

Further, we expect that our current product candidates will, and future product candidates may, require chronic administration. The need for chronic administration increases the risk that participants in our clinical trials will fail to comply with our dosing regimens. If participants fail to comply, we may not be able to generate clinical data acceptable to the FDA in our trials. The need for chronic administration also increases the risk that our clinical drug development programs may not uncover all possible adverse events that patients who take our products may eventually experience. The number of patients exposed to our product treatments and the average exposure time in the clinical development programs may be inadequate to detect rare adverse events or chance findings that may only be detected once our products are administered to more patients and for greater periods of time.

If we are unable to successfully discover, develop or enable our partners to develop drugs that are effective and safe in humans, we will not have a viable business.

The Phase 2 clinical trial of NGM282 that has produced NASH histology data and the Phase 1b clinical trial of NGM313 that has produced liver fat data are ongoing, and the clinical data produced to date is preliminary and has not been subjected to quality control procedures.

We have an ongoing, Phase 2 clinical trial of NGM282 in NASH and an ongoing Phase 1b clinical trial of NGM313 in obese insulin resistant subjects with fatty liver. Until the final cohort of the NGM282 Phase 2 clinical trial is completed and the analysis of pending NGM313 patient assessments and samples are completed, we are unable to perform typical quality control procedures on the data produced in these trials to ensure its accuracy. While we believe the data available to date is accurate, until such time as the final quality control procedures are performed it should be regarded as preliminary. Differences between preliminary data and final data may lead us to make different

operational decisions regarding or incur additional expenses for the development of these product candidates than we otherwise would if final data was available. Additionally, our business and prospects depend on development of these programs, and if final data is less promising than the preliminary data suggests, our business and prospects could be adversely affected.

Success in preclinical studies or earlier-stage clinical trials may not be indicative of results in future clinical trials.

Success in preclinical studies and earlier-stage clinical trials does not ensure that later clinical trials will generate the same results or otherwise provide adequate data to demonstrate the effectiveness and safety of our product candidates. Frequently, product candidates that have shown promising results in early clinical trials have subsequently suffered significant setbacks in later clinical trials. To date, some of our clinical trials have involved small patient populations and, because of the small sample size in such trials, the results of these clinical trials may be subject to substantial variability and may not be indicative of either future interim results or final results. In addition, the design of a clinical trial can determine whether its results will support approval of a product, and flaws in the design of a clinical trial may not become apparent until the clinical trial is well advanced. Because we have limited experience designing clinical trials, we may be unable to design and execute a clinical trial to support regulatory approval. In addition, there is a high failure rate for drugs and biologic products proceeding through clinical trials. In fact, many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials even after achieving promising results in preclinical studies and earlier-stage clinical trials. Similarly, the outcome of preclinical studies may not predict the success of clinical trials. Moreover, data obtained from preclinical and clinical activities is subject to varying interpretations, which may delay, limit or prevent regulatory approval. In addition, we may experience regulatory delays or rejections as a result of many factors, including due to changes in regulatory policy during the period of our product candidate development. Any such delays could negatively impact our business, financial condition, results of operations and prospects.

If we experience delays in clinical testing, we will be delayed in commercializing our product candidates, our costs may increase and our business may be harmed.

Conducting clinical studies for any of our drug candidates for approval in the United States requires filing an IND application and reaching agreement with the FDA on clinical protocols, finding appropriate clinical sites and clinical investigators, securing approvals for such studies from the institutional review board at each such site, manufacturing clinical quantities of drug candidates and supplying drug product to clinical sites. Currently, we have multiple active INDs with the FDA in the United States, including for NGM282 for NASH and PBC and NGM313 for NASH, an active Clinical Trials Notification, or CTN, in Australia for NGM120 and an active Clinical Trial Authorisation in the United Kingdom from the Medicines and Healthcare Products Regulatory Agency for NGM217 for diabetes.

We cannot guarantee that we will be able to successfully accomplish required regulatory activities or all of the other activities necessary to initiate and complete clinical trials. As a result, our preclinical studies and clinical trials may be extended, delayed or terminated, and we may be unable to obtain regulatory approvals or successfully commercialize our products. We do not know whether any other clinical trials will begin as planned, will need to be restructured or will be completed on schedule, or at all. Our product development costs will increase if we experience delays in clinical testing. Significant clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize our product candidates or allow our competitors to bring products to market before we do, which would impair our ability to successfully commercialize our product candidates and may harm

our business, results of operations and prospects. Events that may result in a delay or unsuccessful completion of clinical development include:

- delays in reaching agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites;
- deviations from the trial protocol by clinical trial sites and investigators, or failures to conduct the trial in accordance with regulatory requirements;
- failure of third parties, such as CROs, to satisfy their contractual duties to us or meet expected deadlines;
- delays in the testing, validation, manufacturing and delivery of the product candidates to the clinical sites;
- for clinical trials in selected patient populations, delays in identification and auditing of central or other laboratories and the transfer and validation of assays or tests to be used to identify selected patients;
- delays in patients completing a trial or returning for post-treatment follow-up;
- delays caused by patients dropping out of a trial due to side effects or disease progression;
- demonstration of a significant adverse safety or tolerability signal limiting the utility of the therapeutic candidate;
- withdrawal of clinical trial sites from our clinical trials as a result of changing standards of care or the ineligibility of a site to participate in our clinical trials; or
- changes in government regulations or administrative actions or lack of adequate funding to continue the clinical trials.

Our or our partners' inability to timely complete clinical development could result in additional costs to us or impair our ability to generate product revenue or development, regulatory, commercialization and sales milestone payments and royalties on product sales.

If we or our partners are unable to enroll patients in clinical trials, we will be unable to complete these trials on a timely basis.

The timely completion of clinical trials largely depends on patient enrollment. Many factors affect patient enrollment, including:

- the size and nature of the patient population;
- the number and location of clinical sites we enroll;
- competition with other companies for clinical sites or patients;
- the eligibility and exclusion criteria for the trial;
- the design of the clinical trial;
- inability to obtain and maintain patient consents;
- risk that enrolled participants will drop out before completion; and
- competing clinical trials and clinicians' and patients' perceptions as to the potential advantages of the drug being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating.

In particular, there is significant competition for recruiting NASH patients in clinical trials, and we or our partners may be unable to enroll the patients we need to complete clinical trials on a timely basis, or at all.

We may not successfully identify, develop or commercialize potential product candidates.

The success of our business depends primarily upon our ability to identify and validate new therapeutic candidates, and to identify, develop and commercialize protein and antibody therapeutics. Our research efforts may initially show promise in discovering potential new protein and antibody therapeutics, yet fail to yield product candidates for clinical development for a number of reasons, including:

- our research methodology may not successfully identify medically-relevant protein or antibody therapeutics or potential product candidates;
- we tend to identify and select from our drug discovery efforts novel, untested proteins in the particular disease indication we are pursuing, which we may fail to validate after further research work;
- we may need to rely on third parties to generate protein or antibody candidates for some of our product candidate programs;
- we may encounter product manufacturing difficulties that limit yield or produce undesirable characteristics that increase the cost of manufacturing our product candidates, cause delays or make the product candidates unmarketable;
- our product candidates may cause adverse effects in patients or subjects, even after successful initial toxicology studies, which may make the product candidates unmarketable;
- our product candidates may not demonstrate a meaningful benefit to patients or subjects; and
- our collaboration partners may change their development profiles or plans for potential product candidates or abandon a therapeutic area or the development of a partnered product.

If any of these events occur, we may be forced to abandon our development efforts for one or more programs, which could have a material adverse effect on our business, operating results and prospects and could potentially cause us to cease operations. Research programs to identify new product candidates require substantial technical, financial and human resources. We may focus our efforts and resources on potential programs or product candidates that ultimately prove to be unsuccessful.

We are subject to many manufacturing risks, any of which could substantially increase our costs and limit supply of our products.

To date, our product candidates have been manufactured by third-party manufacturers solely for preclinical studies and clinical trials. These manufacturers may not be able to scale production to the larger quantities required for large clinical trials and to commercialize our product candidates. We have entered into a Development and Manufacturing Services Agreement with Lonza Ltd. for the production of Phase 3 and commercial supplies of NGM282. The process of manufacturing our products is complex, highly regulated and subject to several risks, including:

- the process of manufacturing biologics is susceptible to product loss due to contamination, equipment failure, improper installation or operation of equipment, vendor or operator error and improper storage conditions. Even minor deviations from normal manufacturing processes could result in reduced production yields, product defects and other supply disruptions. If microbial, viral or other contaminations are discovered in our products or in the manufacturing facilities in which our products are made, the manufacturing facilities may need to be closed for an extended period of time to investigate and eliminate the contamination;
- a third-party manufacturer may fail to qualify upon an audit by Merck under our collaboration agreement;

- the manufacturing facilities in which our products are made could be adversely affected by equipment failures, labor and raw material shortages, financial difficulties of our contract manufacturers, natural disasters, power failures, local political unrest and numerous other factors; and
- any adverse developments affecting manufacturing operations for our products may result in shipment delays, inventory shortages, lot failures, product withdrawals or recalls or other interruptions in the supply of our products. We may also have to record inventory write-offs and incur other charges and expenses for products that fail to meet specifications, undertake costly remediation efforts or seek costlier manufacturing alternatives.

Certain raw materials necessary for the manufacture of our product candidates under our current manufacturing process, such as reagents that support cell growth, are available only from a single supplier and have been purchased without a long-term supply agreement. We do not have agreements in place that guarantee our supply or the price of these raw materials. Any significant delay in the acquisition or decrease in the availability of these raw materials could considerably delay the manufacture of our product candidates, which could adversely impact the timing of any planned trials or the regulatory approvals of our product candidates.

The manufacture of biologic products is complex and requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of biologic products often encounter difficulties in production, particularly in scaling up and validating initial production and ensuring the avoidance of contamination. These problems include difficulties with production costs and yields, quality control, including stability of the product, quality assurance testing, operator error and shortages of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. We cannot assure you that any stability or other issues relating to the manufacture of our product candidates will not occur in the future.

We have limited process development capabilities and have access only to external manufacturing capabilities. We do not have and we do not currently plan to acquire or develop the facilities or capabilities to manufacture bulk drug substance or filled drug product for use in human clinical trials or commercialization. Any delay or interruption in the supply of clinical trial materials could delay the completion of clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, require us to commence new clinical trials at additional expense or terminate clinical trials completely.

Our product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval or limit the commercial profile of an approved label.

Undesirable side effects caused by our product candidates could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other comparable foreign regulatory authorities. The following serious adverse events were reported in our Phase 1 and five Phase 2 clinical trials of NGM282: moderate dizziness, community acquired pneumonia, iron deficiency anemia, fractured finger, pneumonitis/alveolitis, acute pancreatitis, pneumonia, pleurisy, non-myocardial infarction cardiac arrest, chest tightness, vertigo, headache, accelerated hypertension, bowel obstruction, bilirubin increase, cholangitis and progression of PSC. Prelimary reporting from our completed Phase 1 and ongoing Phase 1b clinical trials of NGM313 showed that there were no reported serious adverse events except for a single incident of cholecystitis and rectal bleeding due to hemorrhoids, both of which were deemed by the investigators to be unrelated to treatment with NGM313.

One subject in the NGM282 Phase 2a clinical trial in type 2 diabetes developed antibodies against NGM282 that appear to cross-react with FGF19. This patient did not demonstrate any

biochemical or clinical safety concerns while in the study, and we have not identified any safety concerns while monitoring the subject following the study. Six of the 36 subjects in the NGM282 Phase 2 extension clinical trial in PBC were confirmed to have antibodies against NGM282. These subjects have not demonstrated any biochemical or clinical safety signals that were different from observations in subjects that did not generate antibodies against NGM282. However, future results of our trials could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics. In such an event, we could suspend or terminate our trials or the FDA or comparable foreign regulatory authorities could order us to cease clinical trials or deny approval of our product candidates for any or all targeted indications. Drug-related side effects could affect patient recruitment or the ability of enrolled subjects to complete the trial or result in potential product liability claims. Any of these occurrences could materially and adversely affect our business, financial condition and prospects.

Our most advanced clinical-stage product candidate, NGM282, is a modified version of a human hormone that has been associated with liver cancer in rodent testing.

NGM282 is a modified version of FGF19, a human hormone that has been associated with liver cancer in rodent testing. The IND that we filed in February 2014 for type 2 diabetes was placed on clinical hold by the FDA Division of Metabolism and Endocrinology Products pending receipt of additional information relating to the potential risk of proliferative effects of NGM282 in the livers of non-human primates and mice based on concerns relating to the observation that human FGF19 can induce hepatocellular proliferation in rodents. We withdrew this IND in January 2015, as we determined that we would not further study NGM282 in type 2 diabetes after we analyzed the results of the Phase 2a clinical trial of NGM282 in type 2 diabetes and made the determination to pursue NASH and other liver indications. To date, the FDA Division of Gastroenterology and Inborn Errors Products, which is responsible for the NASH indication, has not requested any additional information regarding the potential for NGM282 to induce hepatocellular proliferation. We have received feedback from the FDA Carcinogenicity Assessment Committee, or CAC, that our preclinical data through six-month chronic toxicology studies in mice and monkeys support a single species, two-year carcinogenicity assessment in rats. The human hormone and the mouse ortholog for FGF19 share a sequence identity of approximately 50%, which means that the results of these studies of NGM282 in rats are not necessarily predictive of the potential risk of carcinogenicity in humans. To our knowledge, neither FGF19 nor any variant thereof other than NGM282 has ever been tested in humans. We believe we have identified a modified version of FGF19 that does not exhibit the cancer causing effects of native FGF19 in rodents. We believe that NGM282 will have a superior therapeutic profile to FGF19 based on preclinical data showing reduced fasting blood glucose levels, fed insulin levels and bile acid suppression in animals. However, we may be incorrect in these beliefs, and we cannot be sure that regulators will view our product candidate as safe or that physicians will view our product candidates as superior to alternative treatments. Concerns about the association between FGF19 and liver cancer could have an adverse effect on our ability to develop and commercialize NGM282.

We have no experience in sales, marketing and distribution and may have to enter into agreements with third parties to perform these functions, which could prevent us from successfully commercializing our product candidates.

We currently have no sales, marketing or distribution capabilities. To commercialize our product candidates outside of the Merck collaboration, or to commercialize products subject to the Merck collaboration for which we may in the future exercise our co-detailing rights in the United States, we must either develop our own sales, marketing and distribution capabilities, which will be expensive and time consuming, or make arrangements with third parties to perform these services for us. If we exercise our co-detailing rights in the United States with respect to the Merck collaboration, we will be responsible for the costs of fielding such a sales force, subject to offset pursuant to the formula by

which profits are allocated, and the risks of attracting, retaining, motivating and ensuring the compliance of such a sales force with the various requirements of the Merck collaboration and applicable law. If we decide to market any of our products on our own, we will have to commit significant resources to developing a marketing and sales force and supporting distribution capabilities. If we decide to enter into arrangements with third parties for performance of these services, we may find that they are not available on terms acceptable to us, or at all. If we are not able to establish and maintain successful arrangements with third parties or build our own sales and marketing infrastructure, we may not be able to commercialize our product candidates, which would adversely affect our business and financial condition.

We may fail to select or capitalize on the most scientifically, clinically and commercially promising or profitable product candidates.

We have limited technical, managerial and financial resources to determine which of our product candidates should proceed to initial clinical trials, later-stage clinical development and potential commercialization. We may make incorrect determinations. Our decisions to allocate our research and development, management and financial resources toward particular product candidates or therapeutic areas may not lead to the development of viable commercial products and may divert resources from better opportunities. Similarly, our decisions to delay or terminate drug development programs may also be incorrect and could cause us to miss valuable opportunities.

Under our collaboration agreement with Merck, we have the right, exercisable during a specified period prior to the commencement of Phase 3 clinical testing of the applicable product candidate, to convert our economic participation from a milestones and net sales royalty arrangement into a cost and profit share arrangement. If we exercise the cost and profit share right, we have the ability to participate in a co-detailing relationship in the United States. Due to the limited exercise period, we may have to choose whether a product candidate will be subject to a cost and profit share arrangement before we have as much information as we would like, including whether and when such program may receive FDA approval of the applicable biologics license application, or BLA. As a result of such incomplete information or due to incorrect analysis by us, we may select a cost and profit share program that later proves to have less commercial potential than an alternative, or none at all, or may pass on a cost and profit sharing program that proves commercially successful.

We must attract and retain highly skilled employees in order to succeed. If we are not able to retain our current senior management team, especially Dr. Jin-Long Chen, and our scientific advisors or continue to attract and retain qualified scientific, technical and business personnel, our business will suffer. The departure of Dr. Chen within the next several years would permit Merck to shift the focus under our collaboration agreement to concentrate on the development of later-stage product candidates.

To succeed, we must recruit, retain, manage and motivate qualified clinical, scientific, technical and management personnel and we face significant competition for experienced personnel. If we do not succeed in attracting and retaining qualified personnel, particularly at the management level, it could adversely affect our ability to execute our business plan and harm our operating results. We are dependent on the members of our management team and our scientific advisors for our business success. An important element of our strategy is to take advantage of the research and development expertise of our current management and to utilize the expertise of our scientific advisors in the cardio-metabolic, liver, oncologic and ophthalmic disease fields. We currently have employment letter agreements with all of our executive officers. Our employment agreements with our executive officers are terminable by them without notice and some provide for severance and change in control benefits. See the section titled “Executive and Director Compensation—Other Elements of Compensation—Agreements with our Named Executive Officers” and “Executive and Director Compensation—Other

Elements of Compensation—Potential Payments Upon Termination or Change of Control" for further discussion. The loss of any one of our executive officers or key scientific consultants, including, in particular, Dr. Jin-Long Chen, our Chief Scientific Officer, could result in a significant loss in the knowledge and experience that we, as an organization, possess and could cause significant delays, or outright failure, in the development and further commercialization of our product candidates. During the initial term of the Merck collaboration, the departure of Dr. Chen as our employee or director of our research (other than on account of his employment by Merck) would give Merck the right to shift the focus of its research and development funding to concentrate on the development of later-stage product candidates, but Merck would not have the right to terminate or otherwise alter the conduct of the collaboration.

To fully realize the research and development support committed under our collaboration with Merck, we will need to maintain a significant number of qualified research and development, scientific, administrative and commercial personnel. There is intense competition for qualified personnel, including management in the technical fields in which we operate, and we may not be able to attract and retain qualified personnel necessary for the successful research, development and commercialization of our product candidates. In particular, we have experienced a very competitive hiring environment in the San Francisco Bay Area, where we are headquartered. Many of the other pharmaceutical companies that we compete against for qualified personnel have greater financial and other resources, different risk profiles and a longer history in the industry than we do. They also may provide more diverse opportunities and better chances for career advancement. Some of these characteristics may be more appealing to high-quality candidates than what we have to offer. If we are unable to continue to attract and retain high-quality personnel, the rate and success with which we can discover and develop product candidates and our business will be limited.

Disputes under key agreements or conflicts of interest with our scientific advisors or clinical investigators could delay or prevent development or commercialization of our product candidates.

Any agreements we have or may enter into with third parties, such as collaboration, license, formulation supplier, manufacturing, clinical research organization or clinical trial agreements, may give rise to disputes regarding the rights and obligations of the parties. Disagreements could develop over contract interpretation, rights to ownership or use of intellectual property, the scope and direction of research and development, the approach for regulatory approvals or commercialization strategy. We intend to conduct research programs in a range of therapeutic areas, but our pursuit of these opportunities could result in conflicts with the other parties to these agreements that may be developing or selling pharmaceuticals or conducting other activities in these same therapeutic areas. Any disputes or commercial conflicts could lead to the termination of our agreements, delay progress of our product development programs, compromise our ability to renew agreements or obtain future agreements, lead to the loss of intellectual property rights, result in increased financial obligations for us or result in costly litigation.

We work with outside scientific advisors and collaborators at academic and other institutions that assist us in our research and development efforts. Our scientific advisors are not our employees and may have other commitments that limit their availability to us. If a conflict of interest between their work for us and their work for another entity arises, we may lose their services.

We may encounter difficulties in managing our growth, which could adversely affect our operations.

Since executing the Merck agreement in 2015, we have significantly increased our headcount and advanced our pipeline and the complexity of our operations, which has placed a strain on our

administrative and operational infrastructure. We expect this strain to continue as we maintain our growth and seek to obtain and manage relationships with third parties. Our ability to manage our operations and growth effectively depends upon the continual improvement of our procedures, reporting systems and operational, financial and management controls. We may not be able to expand or identify sufficiently-sized facilities to accommodate our growth, particularly given our location in South San Francisco, California and the current high demand for and restricted supply of research and development facilities in this market. We may not be able to implement administrative and operational improvements in an efficient or timely manner and may discover deficiencies in existing systems and controls. If we do not meet these challenges, we may be unable to take advantage of market opportunities, execute our business strategies or respond to competitive pressures, which in turn may slow our growth or give rise to inefficiencies that would increase our losses.

We may acquire additional technology and complementary businesses in the future. Acquisitions involve many risks, any of which could materially harm our business, including the diversion of management's attention from core business concerns, failure to effectively exploit acquired technologies, failure to successfully integrate the acquired business or realize expected synergies or the loss of key employees from either our business or the acquired businesses.

We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than us.

The biopharmaceutical industry is intensely competitive and subject to rapid and significant technological change. Our competitors include multinational pharmaceutical companies, specialized biotechnology companies and universities and other research institutions. A number of pharmaceutical companies, including AbbVie, Allergan, AstraZeneca/MedImmune, Bayer, Bristol-Myers Squibb, Eisai, Eli Lilly, GlaxoSmithKline, Johnson & Johnson, Merck, Novartis, Novo Nordisk, Pfizer, Roche, Sanofi and Takeda, as well as large and small biotechnology companies such as Akero, Albireo, Amgen, Cirius, Conatus, Cymabay, Enanta, Galectin, Galmed, Genfit, Gilead, Intercept, Madrigal, MannKind, MediciNova, Metacrine, Nalpropion, Terns, Viking, Vivus and Zafgen, are pursuing the development or marketing of pharmaceuticals that target the same diseases that are targeted by our most advanced product candidates. It is probable that the number of companies seeking to develop products and therapies for the treatment of cardio-metabolic disorders, liver, oncologic and ophthalmic diseases will increase. Many of our competitors have substantially greater financial, technical, human and other resources than we do and may be better equipped to develop, manufacture and market technologically superior products. In addition, many of these competitors have significantly greater experience than we have in undertaking preclinical testing and human clinical studies of new pharmaceutical products and in obtaining regulatory approvals of human therapeutic products. Accordingly, our competitors may succeed in obtaining FDA approval for superior products. Many of our competitors have established distribution channels for the commercialization of their products, whereas we have no such channel or capabilities. In addition, many competitors have greater name recognition and more extensive collaborative relationships. Smaller and earlier-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large, established companies.

Our competitors may obtain regulatory approval of their products more rapidly than us or may obtain patent protection or other intellectual property rights that limit our ability to develop or commercialize our product candidates. Our competitors may also develop drugs that are more effective, more convenient, more widely used and less costly or have a better safety profile than our products and these competitors may also be more successful than us in manufacturing and marketing their products. If we are unable to compete effectively against these companies, then we may not be able to commercialize our product candidates or achieve a competitive position in the market. This would adversely affect our ability to generate revenue. Our competitors also compete with us in recruiting and retaining qualified scientific, management and commercial personnel, establishing

clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

There are no currently approved therapies for NASH. Although we believe there are no approved therapies that specifically target the signaling pathways that our current product candidates are designed to modulate or inhibit, there are numerous currently approved therapies for treating the same diseases or indications, other than NASH, for which our product candidates may be useful and many of these currently approved therapies act through mechanisms similar to our product candidates. Many of these approved drugs are well-established therapies or products and are widely accepted by physicians, patients and third-party payors. Some of these drugs are branded and subject to patent protection, and others are available on a generic basis. Insurers and other third-party payors may also encourage the use of generic products or specific branded products. We expect that if our product candidates are approved, they will be priced at a significant premium over competitive generic products, including branded generic products. This may make it difficult for us to differentiate our products from currently approved therapies, which may adversely impact our business strategy. In addition, many companies are developing new therapeutics, and we cannot predict what the standard of care will be as our product candidates progress through clinical development.

If NGM282 or NGM313 were approved for the treatment of NASH, future competition could also arise from products currently in development, including: cenicriviroc, an immunomodulator that blocks CCR2 and CCR5 from Allergan; GS-0976, an ACC inhibitor, GS-9674, an FXR agonist, and selonsertib, an ASK1 inhibitor, from Gilead; OCA, an FXR agonist, from Intercept; MGL-3196, a beta-thyroid hormone receptor agonist from Madrigal; elobixibat, an IBAT-inhibitor from Albireo; a caspase protease inhibitor from Conatus; a Galectin-3 inhibitor from Galectin; a synthetic conjugate of cholic acid and arachidic acid from Galmed; an FXR agonist from Metacrine; FXR agonists from Novartis; and a PPAR alpha/delta agonist from Genfit. The foregoing competitive risks apply to NGM282 and NGM313 and any variants of NGM282 and NGM313 we may commercialize, including the second-generation, half-life extended version of FGF19 we are currently developing.

If NGM386 or NGM395 were approved for the treatment of obesity, these products would face competition from currently approved and marketed products, including *Saxenda* (liraglutide), *Contrave* (bupropion and naltrexone), *Qsymia* (phentermine and topiramate extended-release), *Belviq* (lorcaserin HCL) and *Xenical* (orlistat). Further competition could arise from products currently in development, including Zafgen's ZGN-1061 or ZGN-1258 (MetAP2) product candidates and various FGF21 ligands in development. To the extent any of our product candidates are approved for cardio-metabolic indications, particularly obesity, the commercial success of our products will also depend on our ability to demonstrate benefits over the then-prevailing standard of care, including diet and exercise. Finally, morbidly obese patients sometimes undergo the gastric bypass procedure, with salutary effects on the many co-morbid conditions of obesity. Some of these programs have been advanced further in clinical development then our clinical programs or have already received regulatory approval.

If any of our product candidates were approved for the treatment of type 2 diabetes, these products would face competition from currently approved and marketed products, including: Biguanides; Sulfonylureas; Thiazolidinediones (TZDs); Alpha-glucosidase inhibitors (AGIs); Dipeptidyl peptidase 4 (DPP4) inhibitors; Glucagon-like peptide-1 (GLP-1) analogues; SGLT2 inhibitors; and Insulins, including injectable and inhaled versions. Further competition could arise from products currently in development, including: 11 beta HSD (Incyte, Japan Tobacco, Roche); GPR40 (Connexios, Takeda); oral GLP-1 mimetics (Novo Nordisk); and MetAP2 (Zafgen). Some of these programs have been advanced further in clinical development than our product candidates and could receive approval before our product candidates are approved, if they are approved at all.

Our product candidates may not achieve adequate market acceptance among physicians, patients, healthcare payors and others in the medical community necessary for commercial success.

Even if our product candidates receive regulatory approval, they may not gain adequate market acceptance among physicians, patients, healthcare payors, pharmaceutical companies and others in the medical community. Demonstrating the safety and efficacy of our product candidates and obtaining regulatory approvals will not guarantee future revenue. Our commercial success also depends on coverage and adequate reimbursement of our product candidates by third-party payors, including government payors, which may be difficult or time-consuming to obtain, may be limited in scope and may not be obtained in all jurisdictions in which we may seek to market our products. Governments and private insurers closely examine medical products to determine whether they should be covered by reimbursement and, if so, the level of reimbursement that will apply. We cannot be certain that third-party payors will sufficiently reimburse sales of our products, or enable us to sell our products at profitable prices. Similar concerns could also limit the reimbursement amounts that health insurers or government agencies in other countries are prepared to pay for our products. In many regions, including Europe, Japan and Canada, where we may market our products, either directly or with our collaborators, the pricing of prescription drugs is controlled by the government or regulatory agencies. Regulatory agencies in these countries could determine that the pricing for our products should be based on prices of other commercially available drugs for the same disease, rather than allowing us to market our products at a premium as new drugs. The degree of market acceptance of any of our approved product candidates will depend on a number of factors, including:

- the efficacy and safety profile of the product candidate as demonstrated in clinical trials;
- the timing of market introduction of the product candidate as well as competitive products;
- the clinical indications for which the product candidate is approved;
- acceptance of the product candidate as a safe and effective treatment by clinics and patients;
- the potential and perceived advantages of the product candidate over alternative treatments, including any similar generic treatments;
- the cost of treatment in relation to alternative treatments;
- the availability of coverage and adequate reimbursement and pricing by third parties and government authorities;
- the relative convenience and ease of administration;
- the availability of coverage and adequate reimbursement and pricing by third parties and government authorities;
- the frequency and severity of adverse events;
- the effectiveness of sales and marketing efforts; and
- unfavorable publicity relating to the product candidate.

Sales of medical products also depend on the willingness of physicians to prescribe the treatment, which is likely to be based on a determination by these physicians that the products are safe, therapeutically effective and cost effective. In addition, the inclusion or exclusion of products from treatment guidelines established by various physician groups and the viewpoints of influential physicians can affect the willingness of other physicians to prescribe the treatment. We cannot predict whether physicians, physicians' organizations, hospitals, other healthcare providers, government agencies or private insurers will determine that our products are safe, therapeutically effective and cost effective as compared with competing treatments. If any product candidate is approved but does not achieve an adequate level of acceptance by such parties, we may not generate or derive sufficient revenue from that product candidate and may not become or remain profitable.

Even if we commercialize any of our product candidates, alone or with our partners, these products may become subject to unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives, which could harm our business.

The regulations that govern marketing approvals, pricing and reimbursement for new drug products vary widely from country to country. Current and future legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay or limit our commercial launch of the product, possibly for lengthy time periods, which could negatively impact the revenue we generate from the sale of the product in that particular country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if our product candidates obtain marketing approval.

Our ability to commercialize any products successfully also will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and other third-party payors, such as private health insurers and health maintenance organizations, determine which medications they will cover and establish reimbursement levels. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. We cannot be sure that coverage and reimbursement will be available for any product that we or our partners commercialize and, if reimbursement is available, what the level of reimbursement will be. Coverage and reimbursement may impact the demand for, or the price of, any product candidate for which we or our partners obtain marketing approval. If coverage and reimbursement are not available or reimbursement is available only to limited levels, we and our partners may not be able to successfully commercialize any product candidate for which marketing approval is obtained.

There may be significant delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the FDA or comparable foreign regulatory authorities. Moreover, eligibility for coverage and reimbursement does not imply that a drug will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover our costs and may only be temporary. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Our inability to promptly obtain coverage and profitable reimbursement rates from both government-funded and private payors for any approved products that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

The advancement of healthcare reform may negatively impact our ability to profitably sell our product candidates, if approved.

Third-party payors, whether domestic or foreign, or governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. The United States and many foreign jurisdictions have enacted or proposed legislative and regulatory changes affecting the healthcare system that could prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect our ability to profitably sell any product for which we obtain marketing approval.

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively, the Affordable Care Act, was enacted, which includes measures that have significantly changed the way health care is financed by both governmental and private insurers. Some of the provisions of the Affordable Care Act have yet to be implemented, and there have been judicial and congressional challenges to certain aspects of the Affordable Care Act. In January 2017, President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under the Affordable Care Act to waive, defer, grant exemptions from or delay the implementation of any provision of the Affordable Care Act that would impose a fiscal or regulatory burden on states, individuals, healthcare providers, health insurers or manufacturers of pharmaceuticals or medical devices. The U.S. House of Representatives passed legislation known as the American Health Care Act of 2017 in May 2017. More recently, the Senate Republicans introduced and then updated a bill to replace the Affordable Care Act known as the Better Care Reconciliation Act of 2017. The Senate Republicans also introduced legislation to repeal the Affordable Care Act without companion legislation to replace it, and a "skinny" version of the Better Care Reconciliation Act of 2017.

Each of these measures was rejected by the full Senate. Congress will likely consider other legislation to replace elements of the Affordable Care Act. We continue to evaluate the effect that the Affordable Care Act and its possible repeal and replacement has on our business.

In addition, other legislative changes have been proposed and adopted since the Affordable Care Act was enacted. For example, in August 2011, then-President Obama signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend to Congress proposals in spending reductions. The Joint Select Committee on Deficit Reduction did not achieve a targeted deficit reduction, which triggered the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of, on average, 2% per fiscal year through 2025 unless Congress takes additional action. Recently, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. congressional inquiries and proposed bills designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs and reform government program reimbursement methodologies for drugs. We expect that the healthcare reform measures that have been adopted and may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any approved product and could seriously harm our future revenues. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our products.

There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal and state levels directed at broadening the availability of healthcare and containing or lowering

the cost of healthcare. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our products. Such reforms could have an adverse effect on anticipated revenue from product candidates that we may successfully develop and for which we may obtain regulatory approval and may affect our overall financial condition and ability to develop product candidates.

Our international operations may expose us to business, regulatory, political, operational, financial, pricing and reimbursement risks associated with doing business outside of the United States.

Our business is subject to risks associated with conducting business internationally. Some of our suppliers and clinical trial centers are located outside of the United States. Furthermore, if we or our collaborator succeeds in developing any products, we intend to market them in the European Union and other jurisdictions in addition to the United States. If approved, we or our collaborator may hire sales representatives and conduct physician and patient association outreach activities outside of the United States. Doing business internationally involves a number of risks, including but not limited to:

- multiple, conflicting and changing laws and regulations such as privacy regulations, tax laws, export and import restrictions, employment laws, regulatory requirements, and other governmental approvals, permits and licenses;
- failure by us to obtain and maintain regulatory approvals for the use of our products in various countries;
- rejection or qualification of foreign clinical trial data by the competent authorities of other countries;
- additional potentially relevant third-party patent rights;
- complexities and difficulties in obtaining, maintaining, protecting and enforcing our intellectual property;
- difficulties in staffing and managing foreign operations;
- complexities associated with managing multiple payor reimbursement regimes, government payors or patient self-pay systems;
- limits in our ability to penetrate international markets;
- financial risks, such as longer payment cycles, difficulty collecting accounts receivable, the impact of local and regional financial crises on demand and payment for our products and exposure to foreign currency exchange rate fluctuations;
- natural disasters, political and economic instability, including wars, terrorism and political unrest, outbreak of disease, boycotts, curtailment of trade and other business restrictions;
- certain expenses including, among others, expenses for travel, translation and insurance; and
- regulatory and compliance risks that relate to anti-corruption compliance and record-keeping that may fall within the purview of the U.S. Foreign Corrupt Practices Act, its accounting provisions or its anti-bribery provisions or provisions of anti-corruption or anti-bribery laws in other countries.

Any of these factors could harm our ongoing international clinical operations and supply chain, as well as any future international expansion and operations and, consequently, our business, financial condition, prospects and results of operations.

Product liability lawsuits against us could cause us to incur substantial liabilities and to limit commercialization of any products that we may develop.

We face an inherent risk of product liability exposure related to the testing of our product candidates in human clinical trials and will face an even greater risk if we or our collaborator commercializes any resulting products. Product liability claims may be brought against us by subjects enrolled in our clinical trials, patients, healthcare providers or others using, administering or selling our products. If we cannot successfully defend ourselves against claims that our product candidates or products that we may develop caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidates or products that we may develop;
- termination of clinical trial sites or entire trial programs;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant costs to defend the related litigation;
- substantial monetary awards to trial subjects or patients;
- loss of revenue;
- diversion of management and scientific resources from our business operations; and
- the inability to commercialize any products that we may develop.

Our clinical trial liability insurance coverage may not adequately cover all liabilities that we may incur. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise. Our inability to obtain product liability insurance at an acceptable cost or to otherwise protect against potential product liability claims could prevent or delay the commercialization of any products or product candidates that we develop. We intend to expand our insurance coverage for products to include the sale of commercial products if we obtain marketing approval for our product candidates in development, but we may be unable to obtain commercially reasonable product liability insurance for any products approved for marketing. Large judgments have been awarded in class action lawsuits based on drugs that had unanticipated side effects. If we are sued for any injury caused by our products, product candidates or processes, our liability could exceed our product liability insurance coverage and our total assets. Claims against us, regardless of their merit or potential outcome, may also generate negative publicity or hurt our ability to obtain physician endorsement of our products or expand our business.

Our relationships with customers and third-party payors will be subject to applicable anti-kickback, fraud and abuse, transparency and other healthcare laws and regulations, which, if violated, could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm, administrative burdens and diminished profits and future earnings.

Healthcare providers, physicians and third-party payors will play a primary role in the recommendation and prescription of any product candidates for which we or our collaborator obtains marketing approval. Our future arrangements with third-party payors and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell and distribute our products for which we or our collaborator obtains marketing approval. Restrictions under applicable federal and state healthcare laws and regulations, include the following:

- the federal Anti-Kickback Statute prohibits persons from, among other things, knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or

in kind, to induce or reward, or in return for, the referral of an individual for the furnishing or arranging for the furnishing, or the purchase, lease or order, or arranging for or recommending purchase, lease or order, of any good or service for which payment may be made under a federal healthcare program, such as Medicare and Medicaid;

- the federal False Claims Act imposes criminal and civil penalties, including through civil whistleblower or *qui tam* actions, against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, imposes criminal liability for knowingly and willfully executing a scheme to defraud any healthcare benefit program, knowingly and willfully embezzling or stealing from a healthcare benefit program, willfully obstructing a criminal investigation of a healthcare offense or knowingly and willfully making false statements relating to healthcare matters;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 and its implementing regulations, also imposes obligations on certain covered entity healthcare providers, health plans and healthcare clearinghouses, as well as their business associates that perform certain services involving the use or disclosure of individually identifiable health information, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information;
- the federal Open Payments program, created under Section 6002 of the Affordable Care Act and its implementing regulations, requires manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report annually to the U.S. Department of Health and Human Services information related to "payments or other transfers of value" made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, and applicable manufacturers and applicable group purchasing organizations to report annually to the U.S. Department of Health and Human Services ownership and investment interests held by physicians (as defined above) and their immediate family members; and
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers; state and foreign laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government or otherwise restrict payments that may be made to healthcare providers; state and foreign laws that require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; and state and foreign laws that govern the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law interpreting applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and

administrative penalties, damages, fines, imprisonment, exclusion from government funded healthcare programs, such as Medicare and Medicaid, and the curtailment or restructuring of our operations. If any of the physicians or other healthcare providers or entities with whom we expect to do business is found not to be in compliance with applicable laws, that person or entity may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

Our operations are vulnerable to interruption by fire, earthquake, power loss, telecommunications failure, terrorist activity and other events beyond our control, which could harm our business.

Our facility has been subject to electrical blackouts as a result of a shortage of available electrical power. Future blackouts could disrupt the operations of our facility. Our facility is located in a seismically active region. We have not undertaken a systematic analysis of the potential consequences to our business and financial results from a major earthquake, fire, power loss, terrorist activity or other disasters and do not have a complete recovery plan for such disasters. In addition, we do not carry sufficient insurance to compensate us for actual losses from interruption of our business that may occur, and any losses or damages incurred by us could harm our business. The contract manufacturing organization that is the sole supplier of clinical drug substance of NGM313, NGM386, NGM395, NGM120, NGM217 and NGM621 is located in a region that has experienced recent political unrest.

Our internal computer systems, or those used by our CROs or other contractors or consultants, may fail or suffer security breaches.

Despite the implementation of security measures, our internal computer systems and those of our current and future CROs and other contractors and consultants may fail and are vulnerable to damage from computer viruses and unauthorized access. While we have not, to our knowledge, experienced any such material system failure or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our development programs and our business operations. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. Likewise, we rely on third parties for the manufacture of our product candidates and to conduct clinical trials, and similar events relating to their computer systems could also have a material adverse effect on our business. In 2017, a security breach of the internal computer systems of our collaborator, Merck, caused material damage to their operations, but did not affect our internal operations. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability, our competitive position could be harmed and the further development and commercialization of our product candidates could be hindered or delayed.

European data collection is governed by restrictive regulations governing the use, processing and cross-border transfer of personal information.

Certain of the sites for our ongoing clinical trials are located in the European Union and, if any of our product candidates are approved, we may seek to commercialize those products in the European Union. The collection and use of personal health data in the European Union is governed by the provisions of the General Data Protection Regulation ((EU) 2016/679), or the GDPR. This legislation imposes requirements relating to having legal bases for processing personal information relating to identifiable individuals and transferring such information outside of the European Economic Area, including to the United States, providing details to those individuals regarding the processing of their personal information, keeping personal information secure, having data processing agreements with third parties who process personal information, responding to individuals' requests to exercise their rights in respect of their personal information, reporting security breaches involving personal data to

the competent national data protection authority and affected individuals, appointing data protection officers, conducting data protection impact assessments and record-keeping. The GDPR imposes additional responsibilities and liabilities in relation to personal data that we process and we may be required to put in place additional mechanisms ensuring compliance with the new data protection rules. Failure to comply with the requirements of the GDPR and related national data protection laws of the member states of the European Union may result in substantial fines, other administrative penalties and civil claims being brought against us, which could have a material adverse effect on our business, financial condition and results of operations.

We use and generate materials that may expose us to material liability.

Our research programs involve the use of hazardous materials, chemicals and radioactive and biological materials. We are subject to foreign, federal, state and local environmental and health and safety laws and regulations governing, among other matters, the use, manufacture, handling, storage and disposal of hazardous materials and waste products. We may incur significant costs to comply with these current or future environmental and health and safety laws and regulations. In addition, we cannot completely eliminate the risk of contamination or injury from hazardous materials and may incur material liability as a result of such contamination or injury. In the event of an accident, an injured party may seek to hold us liable for any damages that result. Any liability could exceed the limits or fall outside the coverage of our workers' compensation, property and business interruption insurance and we may not be able to maintain insurance on acceptable terms, if at all. We currently carry no insurance specifically covering environmental claims.

Risks Related to Our Dependence on Merck and Other Third Parties

We depend on our collaboration with Merck and may depend on collaborations with additional third parties for the development and commercialization of our product candidates in the future. If those collaborations are not successful, we may not be able to capitalize on the market potential of these product candidates.

In February 2015, we entered into a collaboration with Merck focused on the discovery, development and commercialization of biologics, including NGM313, NGM386, NGM395, NGM217, NGM120 and NGM621 but excluding NGM282. The collaboration involves a complex allocation of rights, provides for substantial research and development support, provides for additional payments upon Merck's election to extend the term of the research program and provides us with either milestone payments based on the achievement of specified clinical development, regulatory and commercial milestones and royalty-based revenue if certain product candidates are successfully commercialized or a cost and profit sharing arrangement with the possibility of providing sales representatives to co-detail the product candidates that Merck elects to advance in the United States. See "Business—Our Collaboration with Merck." We cannot predict the success of the collaboration.

We may seek other third-party collaborators for the development and commercialization of any product candidates that are not subject to the Merck collaboration, including NGM282. Our likely collaborators for any collaboration arrangements include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. If we enter into any such arrangements with any third parties, we will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of our product candidates. Our ability to generate revenue from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements.

Collaborations involving our product candidates, including our collaboration with Merck, pose risks to us, including the following:

- Collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations. For example, under our collaboration with Merck, once proof-of-concept data has been generated and Merck has exercised its option to acquire an exclusive license for a product candidate, our ability to influence the resources Merck devotes to such product candidate will be substantially reduced until such time, if any, that we exercise our right to participate in a cost and profit sharing arrangement. Even after we exercise that right to participate in a cost and profit sharing arrangement, our ability to influence Merck will be limited.
- Collaborators might opt not to pursue development and commercialization of our product candidates or not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborator's strategic focus or available funding or external factors such as an acquisition that diverts resources or creates competing priorities. For example, Merck might opt not to exercise its option to acquire a license to a product candidate that has generated proof-of-concept data.
- Collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing. For example, under our agreement with Merck, it is possible for Merck to terminate the GDF15 program and any program for which we have not exercised our cost and profit sharing option upon prior written notice or terminate any program for which we have exercised our cost and profit sharing option upon prior written notice, without triggering a termination of the remainder of the collaboration arrangement.
- Collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our medicines or product candidates if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours.
- A collaborator with marketing and distribution rights to one or more medicines might not commit sufficient resources to the marketing and distribution of our product candidates.
- Collaborators might not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our proprietary information or expose us to potential litigation. For example, Merck has the first right to maintain or defend our intellectual property rights under our collaboration arrangement with respect to certain licensed programs and, although we may have the right to assume the maintenance and defense of our intellectual property rights if Merck does not, our ability to do so may be compromised by Merck's actions.
- Disputes may arise between the collaborators and us that result in the delay or termination of the research, development or commercialization of our medicines or product candidates or that result in costly litigation or arbitration that diverts management attention and resources.
- We may lose certain valuable rights under circumstances identified in our collaborations, including, in the case of our agreement with Merck, if we undergo a change in control.
- Collaborations might be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates.
- Collaboration agreements might not lead to development or commercialization of product candidates in the most efficient manner, or at all. If a present or future collaborator of ours were

to be involved in a business combination, the continued pursuit and emphasis on our product development or commercialization program under such collaboration could be delayed, diminished or terminated.

Under certain circumstances, Merck may unilaterally terminate its annual funding of our research and development program, terminate or choose not to renew its agreement with us or shift the focus of its research and development funding, any of which would materially and adversely affect our business.

Under our collaboration agreement with Merck, Merck has the right to terminate all or part of the agreement at certain times and under certain circumstances. Merck may terminate the research and early development program effective March 17, 2020 by providing notice to us on or prior to March 17, 2019. Merck may terminate its annual funding of the research program prior to March 17, 2020 if we are acquired by a third party or if we are in material uncured breach of our obligations under the research and early development program. During the initial term of the Merck collaboration, the departure of Dr. Chen as our employee or director of our research (other than on account of his employment by Merck) gives rise to the right of Merck to shift the focus of the research and development funding provided by Merck to concentrate on the development of later-stage product candidates, but Merck would not have the right to terminate or otherwise alter the conduct of the collaboration. After the initial term of the collaboration or, if Merck exercises its option to extend the term, after such extension period, Merck may terminate the overall agreement for convenience upon written notice and subject to certain limitations.

Subject to certain limitations, Merck may partially terminate the agreement for convenience as it relates to the GDF15 agonist program, including NGM386 and NGM395, or to any future optioned program. It may also terminate the agreement as it relates to its rights to research and develop small molecule compounds. Merck may also terminate the agreement with respect to its license to GDF15 analogs or with respect to a specific optioned program in the event of an uncured material breach by us. If Merck terminates a program as a result of our uncured material breach, then we would lose our option to participate in global cost and profit sharing if not yet exercised as of the time of termination, and lose our co-detailing option (whether or not exercised as of that time) for compounds arising from the GDF15 program or the relevant optioned program.

If Merck terminates funding, terminates the collaboration agreement, decides not to extend the research phase of the collaboration or shifts the focus of its research and development funding, it could impede our ability to fund and complete our research and development programs, which would materially and adversely affect our business.

We may not be able to obtain and maintain the third party relationships that are necessary to develop, commercialize and manufacture some or all of our product candidates.

In addition to our dependence on our collaboration with Merck, we expect to depend on other collaborators, partners, licensees, clinical research organizations, manufacturers and other third parties to support our discovery efforts, to formulate product candidates, to conduct clinical trials for some or all of our product candidates, to manufacture clinical and commercial scale quantities of our drug substance and drug product and to market, sell and distribute any products we successfully develop. Any problems we experience with any of these third parties could delay the development, commercialization and manufacturing of our product candidates, which could harm our results of operations.

We have contracted with third parties for the manufacture of NGM282, NGM313, NGM386, NGM395, NGM217, NGM120 and NGM621 bulk drug substance and drug product, and for the labeling

and distribution of drug product for these candidates for use in our clinical trials. We believe our current drug substance contractors have the scale, the systems and the experience to supply our Phase 2 clinical trials for NGM282, our collaborator's Phase 1 clinical trials for NGM386 and NGM395, our Phase 1 clinical trials for NGM313, NGM217 and NGM120 and our planned Phase 1 clinical trial for NGM621.

Other than a long-term supply agreement with Lonza for NGM282, we have not contracted with alternate suppliers in the event the organizations we are currently utilizing are unable to scale production, or if we otherwise experience any problems with them. If we are unable to arrange for alternative third-party manufacturing sources, or to do so on commercially reasonable terms or in a timely manner, we may be delayed in the development of our product candidates.

Reliance on third-party manufacturers entails risks to which we would not be subject if we manufactured product candidates or products ourselves, including reliance on third parties for regulatory compliance and quality assurance, the possibility of breach of the manufacturing agreement by third parties because of factors beyond our control (including a failure to manufacture our product candidates or any products we may eventually commercialize in accordance with our specifications) and the possibility of termination or nonrenewal of agreements by third parties, based on its own business priorities, at a time that is costly or damaging to us.

If any of our product candidates is approved by the FDA or other regulatory agencies for commercial sale, we or our collaborator may need to manufacture it in larger quantities. We intend to use third-party manufacturers for commercial quantities of NGM282, NGM313, NGM217, NGM120 and NGM621 and will rely on our collaborator to determine whether to utilize a third-party manufacturer or internal manufacturing capacity for NGM386, NGM395 and other product candidates. Our or our collaborator's manufacturers may not be able to successfully increase the manufacturing capacity for any of our product candidates in a timely or efficient manner, or at all. If we or our collaborator is unable to successfully increase the manufacturing capacity for a product candidate, the regulatory approval or commercial launch of that product candidate may be delayed or there may be a shortage in the supply of the product candidate. Our or our collaborator's failure or the failure of third-party manufacturers to comply with the FDA's cGMP and to pass inspections of the manufacturing facilities by the FDA or other regulatory agencies could seriously harm our business.

We cannot guarantee that we or, as applicable, our collaborator will be able to successfully negotiate agreements for, or maintain relationships with, collaborators, partners, licensees, clinical investigators, manufacturers and other third parties on favorable terms, if at all. If we or our collaborator is unable to obtain or maintain these agreements, we may not be able to clinically develop, formulate, manufacture, obtain regulatory approvals for or commercialize our product candidates, which will in turn adversely affect our business.

We and our collaborator expect to expend substantial management time and effort to enter into relationships with third parties and, if we or our collaborator successfully enter into such relationships, to manage these relationships. In addition, substantial amounts of our expenditures will be paid to third parties in these relationships. However, we cannot control the amount or timing of resources our contract partners will devote to our research and development programs, product candidates or potential product candidates, and we cannot guarantee that these parties will fulfill their obligations to us under these arrangements in a timely fashion, if at all. In addition, we are less knowledgeable about the reputation and quality of third-party contractors in countries outside of the United States where we conduct discovery research, preclinical and clinical development and manufacturing of our programs and, therefore, enter into these relationships with less information than if these third parties were in the United States and may not choose the best parties for these relationships.

We may seek to establish additional collaborations, and, if we are not able to establish them on commercially reasonable terms, we may have to alter our development and commercialization plans.

Our drug development programs and the potential commercialization of our product candidates will require substantial additional cash to fund expenses. For product candidates not partnered with Merck, such as NGM282, we may decide to collaborate with other pharmaceutical and biotechnology companies for their development and potential commercialization.

We face significant competition in seeking appropriate collaborators. Whether we reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA or similar regulatory authorities outside the United States, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products and the existence of uncertainty with respect to our ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge and industry and market conditions generally. The collaborators may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us for our product candidate.

We may also be restricted under existing collaboration agreements from entering into future agreements on certain terms with potential collaborators. For example, under our collaboration agreement with Merck, we may not directly or indirectly research, develop, manufacture or commercialize, except pursuant to the agreement, any medicine or product candidate that modulates a target then subject to the collaboration with specified activity. The FGF19 program, including NGM282, is excluded from this provision, notwithstanding that both NGM282 and NGM313 signal through the FGFR1c pathway. During the tail period following the research term, we may not directly or indirectly research, develop or commercialize, outside of the collaboration, any medicine or product candidate with specified activity against any collaboration target that has been designated a tail target.

Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators.

We may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of the product candidate for which we are seeking to collaborate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms, or at all. If we do not have sufficient funds, we may not be able to further develop our product candidates or bring them to market and generate product revenue.

We rely on third parties to conduct our clinical trials and some aspects of our research and preclinical testing, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials, research or testing.

We currently rely on, and expect to continue to rely on, third parties, such as contract research organizations, clinical data management organizations, medical institutions, consultants and clinical

investigators, to conduct our clinical trials and certain aspects of our research and preclinical testing. Any of these third parties may terminate their engagements with us at any time. If we need to enter into alternative arrangements, it would delay our product development activities and such alternative arrangements may not be available on terms acceptable to us.

Our reliance on these third parties for research and development activities will reduce our control over these activities, but will not relieve us of our responsibilities. For example, we will remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA requires us to comply with standards, commonly referred to as current Good Clinical Practices, for conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. We also are required to register ongoing clinical trials and post the results of completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within certain timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions.

Furthermore, these third parties may also have relationships with other entities, some of which may be our competitors. If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we will not be able to obtain, or may be delayed in obtaining, marketing approvals for our product candidates and will not be able to, or may be delayed in our efforts to, successfully commercialize our medicines.

We also expect to rely on other third parties to store and distribute drug supplies for our clinical trials. Any performance failure on the part of our distributors could delay clinical development or marketing approval of our product candidates or commercialization of our medicines, producing additional losses and depriving us of potential product revenue.

We contract with third parties for the manufacture of our product candidates for preclinical testing and expect to continue to do so for clinical trials and for commercialization. This reliance on third parties increases the risk that we will not have sufficient quantities of our product candidates or medicines or that such supply will not be available to us at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We do not have any manufacturing facilities. We currently rely, and expect to continue to rely, on third-party manufacturers for the manufacture of our product candidates for preclinical and clinical testing and for commercial supply of any of these product candidates for which we or our collaborator obtains marketing approval. To date, we have obtained materials for NGM282, NGM313, NGM386, NGM395, NGM217, NGM120 and NGM621 for our preclinical and clinical testing from third-party manufacturers for preclinical testing. Other than for a long-term supply agreement with Lonza for NGM282, we do not have a long-term supply agreement with any third-party manufacturer, and we purchase our required drug supply on a purchase order basis.

We may be unable to establish any agreements with third-party manufacturers or to do so on acceptable terms. Even if we are able to establish agreements with third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

- the possible breach of the manufacturing agreement by the third party;
- the possible termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us; and
- reliance on the third party for regulatory compliance, quality assurance and safety and pharmacovigilance reporting.

Third-party manufacturers may not be able to comply with current Good Manufacturing Practices, or cGMP, regulations or similar regulatory requirements outside the United States. Our failure, or the failure of third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or medicines, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our medicines and harm our business and results of operations.

Any medicines that we may develop may compete with other product candidates and products for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP regulations and that might be capable of manufacturing for us.

Any performance failure on the part of our existing or future manufacturers could delay clinical development or marketing approval. We do not currently have arrangements in place for redundant supply for bulk drug substances. If any one of our current contract manufacturers cannot perform as agreed, we may be required to replace that manufacturer. Although we believe that there are several potential alternative manufacturers who could manufacture our product candidates, we may incur added costs and delays in identifying and qualifying any such replacement.

Our current and anticipated future dependence upon others for the manufacture of our product candidates or medicines may adversely affect our future profit margins and our ability to commercialize any medicines that receive marketing approval on a timely and competitive basis.

Risks Related to Regulatory Approvals

None of our product candidates has received regulatory approvals. If we are unable to obtain regulatory approvals to market one or more of our product candidates, our business will be adversely affected.

We do not expect our product candidates to be commercially available for several years, if at all. Our product candidates are subject to strict regulation by regulatory authorities in the United States and in other countries. We cannot market any product candidate until we have completed all necessary preclinical studies and clinical trials and have obtained the necessary regulatory approvals. We do not know whether regulatory agencies will grant approval for any of our product candidates. Even if we complete preclinical studies and clinical trials successfully, we may not be able to obtain regulatory approvals or we may not receive approvals to make claims about our products that we believe to be necessary to effectively market our products. Data obtained from preclinical studies and clinical trials is subject to varying interpretations that could delay, limit or prevent regulatory approval, and failure to comply with regulatory requirements or inadequate manufacturing processes are examples of other problems that could prevent approval. In addition, we may encounter delays or rejections due to additional government regulation from future legislation, administrative action or changes in the policies of the FDA or comparable foreign regulatory authorities. Even if the FDA or a comparable foreign regulatory authority approves a product, the approval will be limited to those indications covered in the approval.

The regulatory approval processes of the FDA and comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable. Our inability to obtain regulatory approval for our product candidates would substantially harm our business.

Currently, none of our product candidates has received regulatory approval. The time required to obtain approval from the FDA and comparable foreign regulatory authorities is unpredictable but typically takes many years following the commencement of preclinical studies and clinical trials and

depends upon numerous factors, including the substantial discretion of the regulatory authorities. In addition, approval policies, regulations or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's development and may vary among jurisdictions. We have not obtained regulatory approval for any product candidate and it is possible that none of our existing product candidates or any future product candidates will ever obtain regulatory approval.

Our product candidates could fail to receive regulatory approval from the FDA or a comparable foreign regulatory authority for many reasons, including:

- disagreement with the design or implementation of our clinical trials;
- failure to demonstrate that a product candidate is safe and effective for its proposed indication;
- failure of clinical trials to meet the level of statistical significance required for approval;
- failure to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks;
- disagreement with our interpretation of data from preclinical studies or clinical trials;
- the insufficiency of data collected from clinical trials of our product candidates to support the submission and filing of a biologics license application, or BLA, or other submission or to obtain regulatory approval;
- failure to obtain approval of the manufacturing processes or facilities of third-party manufacturers with whom we contract for clinical and commercial supplies; or
- changes in the approval policies or regulations that render our preclinical and clinical data insufficient for approval.

The FDA or a comparable foreign regulatory authority may require more information, including additional preclinical or clinical data to support approval, which may delay or prevent approval and our commercialization plans, or we may decide to abandon the development program for other reasons. If we were to obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications than we request, may grant approval contingent on the performance of costly post-marketing clinical trials or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate.

We have received orphan drug status for NGM282 for PBC in the United States and for PBC and PSC in the European Union. The FDA grants orphan drug designation to drugs intended to treat a rare disease or condition, which is generally defined as a disease or condition that affects fewer than 200,000 individuals in the United States and fewer than five in 10,000 individuals in the European Union. Typically, if a drug with an orphan drug designation subsequently receives the first marketing approval for the indication for which it has such designation, the drug is entitled to a period of marketing exclusivity, which precludes the FDA or the European Medicines Agency, or EMA, from approving another marketing application for the same drug for that time period. The applicable period is seven years in the United States and 10 years in the EU. The EU exclusivity period can be reduced to six years if a drug no longer meets the criteria for orphan drug designation or if the drug is sufficiently profitable so that market exclusivity is no longer justified. Orphan drug exclusivity may be lost if the FDA or EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition.

Although we have obtained orphan drug status for NGM282 for PBC and PSC, that exclusivity may not effectively protect the candidate from competition because different drugs can be approved for

the same condition. Even after an orphan drug is approved, the FDA can subsequently approve the same drug for the same condition if the FDA concludes that the later drug is clinically superior, in that it is shown to be safer, more effective or makes a major contribution to patient care. Any inability to secure orphan drug designation or the exclusivity benefits of this designation could have an adverse impact on our ability to develop and commercialize our product candidates. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. Obtaining orphan drug designation may not provide us with a material commercial advantage.

The FDA has a Fast Track program that is intended to expedite or facilitate the process for reviewing new drug products that meet certain criteria. Specifically, new drugs are eligible for Fast Track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. Fast Track designation applies to the combination of the product and the specific indication for which it is being studied. Unique to a Fast Track product, the FDA may consider for review sections of the BLA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA. Fast Track designation does not change the standards for product approval.

Although NGM282 has received Fast Track designation from the FDA for PBC and NASH, we may not necessarily experience faster development timelines or achieve faster review or approval compared to conventional FDA procedures. Access to an expedited program may also be withdrawn by the FDA if it believes that the designation is no longer supported by data from our clinical development program. Additionally, qualification for any expedited review procedure does not ensure that we will ultimately obtain regulatory approval for NGM282 or any other product candidate that we are developing or may develop.

Our failure to obtain regulatory approval in international jurisdictions would prevent us from marketing our product candidates outside the United States.

If we or our collaborators succeed in developing any products, we intend to market them in the European Union and other foreign jurisdictions in addition to the United States. In order to market and sell our products in other jurisdictions, we must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain FDA approval. The regulatory approval process outside the United States generally includes all of the risks associated with obtaining FDA approval. In addition, in many countries outside the United States, we must secure product reimbursement approvals before regulatory authorities will approve the product for sale in that country. Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. Further, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries and regulatory approval in one country does not ensure approval in any other country, while a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory approval process in others. Also, regulatory approval for any of our product candidates may be withdrawn if we fail to comply with regulatory requirements, if problems occur after the product candidate reaches the market or for other reasons. If we fail to comply with the regulatory requirements in international markets and fail to receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed and our business will be adversely affected. We may not obtain foreign regulatory approvals on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions. Approval by one regulatory authority outside the United States does not

ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. If we fail to obtain approval of any of our product candidates by regulatory authorities in another country we will be unable to commercialize our product in that country, and the commercial prospects of that product candidate and our business prospects could decline.

Even if our product candidates receive regulatory approval, they may still face future development and regulatory difficulties.

Even if we obtained regulatory approval for a product candidate, it would be subject to ongoing requirements by the FDA and comparable foreign regulatory authorities governing the manufacture, quality control, further development, labeling, packaging, storage, distribution, safety surveillance, import, export, advertising, promotion, recordkeeping and reporting of safety and other post-market information. The FDA and comparable foreign regulatory authorities will continue to closely monitor the safety profile of any product even after approval. If the FDA or comparable foreign regulatory authorities become aware of new safety information after approval of any of our product candidates, they may require labeling changes or establishment of a risk evaluation and mitigation strategy or similar strategy, impose significant restrictions on a product's indicated uses or marketing or impose ongoing requirements for potentially costly post-approval studies or post-market surveillance.

In addition, manufacturers of drug products and their facilities are subject to continual review and periodic inspections by the FDA and other regulatory authorities for compliance with cGMP, regulations and standards. If we or a regulatory agency discover previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, a regulatory agency may impose restrictions on that product, the manufacturing facility or us, including requiring recall or withdrawal of the product from the market or suspension of manufacturing. If we, our product candidates or the manufacturing facilities for our product candidates fail to comply with applicable regulatory requirements, or undesirable side effects caused by such products are identified, a regulatory agency may:

- issue safety alerts, Dear Healthcare Provider letters, press releases or other communications containing warnings about such product;
- mandate modifications to promotional materials or require us to provide corrective information to healthcare practitioners;
- require that we conduct post-marketing studies;
- require us to enter into a consent decree, which can include imposition of various fines, reimbursements for inspection costs, required due dates for specific actions and penalties for noncompliance;
- seek an injunction or impose civil or criminal penalties or monetary fines;
- suspend marketing of, withdraw regulatory approval of or recall such product;
- suspend any ongoing clinical studies;
- refuse to approve pending applications or supplements to applications filed by us;
- suspend or impose restrictions on operations, including costly new manufacturing requirements; or
- seize or detain products, refuse to permit the import or export of products or require us to initiate a product recall.

The occurrence of any event or penalty described above may inhibit our ability to commercialize our products and generate revenue.

Advertising and promotion of any product candidate that obtains approval in the United States will be heavily scrutinized by the FDA, the Department of Justice, the Department of Health and Human Services' Office of Inspector General, state attorneys general, members of Congress and the public. Violations, including promotion of our products for unapproved (or off-label) uses, are subject to enforcement letters, inquiries and investigations, and civil and criminal sanctions by the government. Additionally, comparable foreign regulatory authorities will heavily scrutinize advertising and promotion of any product candidate that obtains approval outside of the United States.

In the United States, engaging in the impermissible promotion of our products for off-label uses can also subject us to false claims litigation under federal and state statutes, which can lead to civil and criminal penalties and fines and agreements that materially restrict the manner in which a company promotes or distributes drug products. These false claims statutes include the federal False Claims Act, which allows any individual to bring a lawsuit against a pharmaceutical company on behalf of the federal government alleging submission of false or fraudulent claims, or causing to present such false or fraudulent claims, for payment by a federal program such as Medicare or Medicaid. If the government prevails in the lawsuit, the individual will share in any fines or settlement funds. Since 2004, these False Claims Act lawsuits against pharmaceutical companies have increased significantly in volume and breadth, leading to several substantial civil and criminal settlements regarding certain sales practices promoting off-label drug uses involving fines in excess of $1 billion. This growth in litigation has increased the risk that a pharmaceutical company will have to defend a false claim action, pay settlement fines or restitution, agree to comply with burdensome reporting and compliance obligations and be excluded from Medicare, Medicaid and other federal and state healthcare programs. If we do not lawfully promote our approved products, we may become subject to such litigation and, if we do not successfully defend against such actions, those actions may have a material adverse effect on our business, financial condition and results of operations.

The FDA's policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained, which would adversely affect our business, prospects and ability to achieve or sustain profitability.

Even if we are able to obtain regulatory approvals for any of our product candidates, if they exhibit harmful side effects after approval, our regulatory approvals could be revoked or otherwise negatively impacted, and we could be subject to costly and damaging product liability claims.

Even if we receive regulatory approval for NGM282 or any of our other product candidates, we will have tested them in only a small number of patients during our clinical trials. If our applications for marketing are approved and more patients begin to use our product, new risks and side effects associated with our products may be discovered. As a result, regulatory authorities may revoke their approvals. If NGM282 is approved by the FDA based on a surrogate endpoint pursuant to accelerated approval regulations (Subpart H and E regulations), we will be required to conduct additional clinical trials establishing clinical benefit on the ultimate outcome of NASH. Additionally, we may be required to conduct additional clinical trials, make changes in labeling of our product, reformulate our product or make changes and obtain new approvals for our and our suppliers' manufacturing facilities for NGM282 and our other product candidates. We might have to withdraw or recall our products from the marketplace. We may also experience a significant drop in the potential sales of our product if and when regulatory approvals for such product are obtained, experience harm to our reputation in the marketplace or become subject to lawsuits, including class actions. Any of these results could decrease or prevent any sales of our approved product or substantially increase the costs and expenses of commercializing and marketing our product.

Risks Related to Our Intellectual Property

Our success depends upon our ability to obtain and maintain intellectual property protection for our products and technologies.

Our success will depend in significant part on our and our current or future licensors', licensees' or collaborators' ability to establish and maintain adequate protection of our intellectual property covering the product candidates we plan to develop, and the ability to develop these product candidates and commercialize the products resulting therefrom, without infringing the intellectual property rights of others. In addition to taking other steps to protect our intellectual property, we have applied for, and intend to continue to apply for, patents with claims covering our technologies, processes and product candidates when and where we deem it appropriate to do so. We have filed numerous patent applications both in the United States and in certain foreign jurisdictions to obtain patent rights to inventions we have discovered, with claims directed to compositions of matter, methods of use, formulations, combination therapy and other technologies relating to our product candidates. There can be no assurance that any of these patent applications will issue as patents or, for those applications that do mature into patents, whether the claims of the patents will exclude others from making, using or selling our product candidates or products that are substantially similar to our product candidates. In countries where we have not and do not seek patent protection, third parties may be able to manufacture and sell our product candidates without our permission, and we may not be able to stop them from doing so.

With respect to patent rights, we do not know whether any of the pending patent applications for any of our product candidates will result in the issuance of patents that effectively protect our technologies, processes and product candidates, or if any of our issued patents or our current or future licensors', licensees' or collaborators' issued patents will effectively prevent others from commercializing competitive technologies, processes and products. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing or in some cases not at all, until they are issued as a patent. Therefore, we cannot be certain that we or our current or future licensors, licensees or collaborators were the first to make the inventions claimed in our owned or licensed patents or pending patent applications, or that we or our current or future licensors, licensees or collaborators were the first to file for patent protection of such inventions.

Any changes we make to our product candidates, including NGM282, NGM313, NGM386 and NGM395, to cause them to have what we view as more advantageous properties may not be covered by our existing patents and patent applications, and we may be required to file new applications and/or seek other forms of protection for any such altered product candidates. The patent landscape surrounding the technology underlying our product candidates is crowded, and there can be no assurance that we would be able to secure patent protection that would adequately cover an alternative to our NGM282 molecule, including the half-life extended variant of FGF19 that we are developing, NGM313, NGM386, NGM395 or any of our other product candidates.

We do not currently own or have a license to any issued patents that cover our NGM120, NGM217 or NGM621 product candidates, although they are disclosed and claimed in pending U.S. provisional, U.S. non-provisional and/or Patent Cooperation Treaty, or PCT, applications. The patent landscape surrounding NGM120, NGM217 and NGM621 is crowded, and there can be no assurance that we will be able to secure patent protection that would adequately cover such product candidates, nor can there be any assurance that we would obtain sufficiently broad claims to be able to prevent others from selling competing products. For a description of our patent portfolio, see the section titled "Business—Intellectual Property—Patents and Other Proprietary Rights."

The patent prosecution process is expensive and time-consuming, and we and our current or future licensors, licensees or collaborators may not be able to prepare, file and prosecute all necessary

or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we or our current or future licensors, licensees or collaborators will fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection for them. Moreover, in some circumstances, we may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain or enforce the patents, covering technology that we license from or license to third parties and may be reliant on our current or future licensors, licensees or collaborators to perform these activities, which means that these patent applications may not be prosecuted, and these patents enforced, in a manner consistent with the best interests of our business. If our current or future licensors, licensees or collaborators fail to establish, maintain, protect or enforce such patents and other intellectual property rights, such rights may be reduced or eliminated. If our current or future licensors, licensees or collaborators are not fully cooperative or disagree with us as to the prosecution, maintenance or enforcement of any patent rights, such patent rights could be compromised.

Similar to other biotechnology companies, our patent position is generally highly uncertain and involves complex legal and factual questions. The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our patents may be challenged in the courts or patent offices in the United States and abroad. In recent years, these areas have been the subject of much litigation in the industry. As a result, the issuance, scope, validity, enforceability and commercial value of our and our current or future licensors', licensees' or collaborators' patent rights are highly uncertain. Our and our current or future licensors', licensees' or collaborators' pending and future patent applications may not result in patents being issued that protect our technology or product candidates, or products resulting therefrom, in whole or in part, or that effectively prevent others from commercializing competitive technologies and products. The patent examination process may require us or our current or future licensors, licensees or collaborators to narrow the scope of the claims of pending and future patent applications, which would limit the scope of patent protection that is obtained, if any. Our and our current or future licensors', licensees' or collaborators' patent applications cannot be enforced against third parties practicing the technology that is currently claimed in such applications unless and until a patent issues from such applications, and then only to the extent the claims that issue are broad enough to cover the technology being practiced by third parties.

Furthermore, given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after the resulting products are commercialized. As a result, our owned and in-licensed patents may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours. We expect to seek extensions of patent terms for our issued patents, where available. This includes in the United States under the Hatch-Waxman Act, which permits a patent term extension of up to five years beyond the original expiration date of the patent as compensation for regulatory delays. However, such a patent term extension cannot lengthen the remaining term of a patent beyond a total of 14 years from the product's approval date. Only one patent applicable to an approved drug is eligible for the extension and the application for the extension must be submitted prior to the expiration of the patent. During the period of patent term extension, the claims of a patent are not enforceable for their full scope, but are instead limited to the scope of the approved product. In addition, the applicable authorities, including the FDA in the United States, and any equivalent regulatory authority in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or may grant more limited extensions than we request. In addition, we may not be granted an extension because of, for example, failing to apply within applicable deadlines, failing to apply prior to the expiration of relevant patents or otherwise failing to satisfy applicable requirements. If this occurs, any period during which we have the right to exclusively market our product will be shorter than we would otherwise expect, and our competitors may obtain approval of and launch products earlier than might otherwise be the case.

We may not be able to protect our intellectual property rights throughout the world.

The legal protection afforded to inventors and owners of intellectual property in countries outside of the United States may not be as protective or effective as that in the United States and we may, therefore, be unable to acquire and enforce intellectual property rights outside the United States to the same extent as in the United States. Whether filed in the United States or abroad, our patent applications may be challenged or may fail to result in issued patents.

In addition, our existing patents and any future patents we obtain may not be sufficiently broad to prevent others from practicing our technologies or from developing or commercializing competing products. Furthermore, others may independently develop or commercialize similar or alternative technologies or drugs, or design around our patents. Our patents may be challenged, invalidated, circumvented or narrowed, or fail to provide us with any competitive advantages. In many foreign countries, patent applications and/or issued patents, or parts thereof, must be translated into the native language. If our patent applications or issued patents are translated incorrectly, they may not adequately cover our technologies; in some countries, it may not be possible to rectify an incorrect translation, which may result in patent protection that does not adequately cover our technologies in those countries.

Filing, prosecuting, enforcing and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States are less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and certain state laws in the United States. Consequently, we and our collaborator may not be able to prevent third parties from practicing our and our collaborator's inventions in all countries outside the United States, or from selling or importing products made using our and our collaborator's inventions in and into the United States or other jurisdictions. Competitors may use our and our collaborator's technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we and our collaborator have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our product candidates and our and our collaborator's patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biopharmaceuticals. This could make it difficult for us and our collaborator to stop the infringement of our and our collaborator's patents or the marketing of competing products in violation of our and our collaborator's proprietary rights, generally. Proceedings to enforce our and our collaborator's patent rights in foreign jurisdictions could result in substantial costs and divert our and
our collaborator's efforts and attention from other aspects of our business, could put our and our collaborator's patents at risk of being invalidated or interpreted narrowly, could place our and our collaborator's patent applications at risk of not issuing and could provoke third parties to assert claims against us or our collaborator. We or our collaborator may not prevail in any lawsuits that we or our collaborator initiate and the damages or other remedies awarded, if any, may not be commercially meaningful.

The requirements for patentability differ in certain countries, particularly developing countries. For example, China has a heightened requirement for patentability and, specifically, requires a detailed description of medical uses of a claimed drug. In addition, India, certain countries in Europe and certain developing countries, including Thailand, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we and our collaborator may

have limited remedies if patents are infringed or if we or our collaborator are compelled to grant a license to a third party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. Accordingly, our and our collaborator's efforts to enforce intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we own or license.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance and annuity fees on issued United States patents and most foreign patent applications and patents must be paid to the U.S. Patent and Trademark Office, or USPTO, and foreign patent agencies, respectively, in order to maintain such patents and patent applications. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application, examination and issuance processes. While an inadvertent lapse can, in some cases, be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. If we or our collaborator fail to maintain the patents and patent applications covering our product candidates, our competitors might be able to enter the market with similar or identical products or technology, which would have a material adverse effect on our business, financial condition and results of operations.

Changes in patent law could diminish the value of patents in general, thereby impairing our ability to protect our product candidates.

As is the case with other biotechnology and pharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involves technological and legal complexity, and obtaining and enforcing biopharmaceutical patents is costly, time-consuming and inherently uncertain. The U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances, weakening the rights of patent owners in certain situations or ruling that certain subject matter is not eligible for patent protection. In addition to increasing uncertainty with regard to our and our collaborator's ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by Congress, the federal courts, the USPTO and equivalent bodies in foreign jurisdictions, the laws and regulations governing patents could change in unpredictable ways that would weaken our and our collaborator's ability to obtain new patents or to enforce existing patents and patents we and our collaborator may obtain in the future.

Patent reform laws, such as the Leahy-Smith America Invents Act, or the Leahy-Smith Act, as well as changes in how patent laws are interpreted, could increase the uncertainties and costs surrounding the prosecution of our and our collaborator's patent applications and the enforcement or defense of our or our collaborator's issued patents. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the filing and prosecution strategies associated with patent applications, including a change from a "first-to-invent" to a

"first-inventor-to-file" patent system, and may also affect patent prosecution and litigation, such as by allowing third-party submission of prior art to the USPTO during patent prosecution and additional procedures to attack the validity of a patent by USPTO-administered post-grant proceedings, including post-grant review, *inter partes* review and derivation proceedings. The USPTO has developed regulations and procedures to govern administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act and, in particular, the "first-inventor-to-file" provisions, became effective in 2013. Accordingly, it is not clear what, if any, impact the Leahy-Smith Act will have on the operation of our business. However, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our or our collaborator's patent applications and the enforcement or defense of our or our collaborator's issued patents, all of which could have a material adverse effect on our business, financial condition and results of operations.

We may be unable to obtain intellectual property rights or technology necessary to develop and commercialize our product candidates.

Several third parties are actively researching and seeking and obtaining patent protection in the cardio-metabolic disease, NASH, oncology and ophthalmic fields, and there are issued third-party patents and published third-party patent applications in these fields. The patent landscape around our NGM282, NGM313, NGM386, NGM395, NGM217, NGM120 and NGM621 product candidates is complex, and we are aware of several third-party patents and patent applications containing claims directed to compositions of matter, methods of use and related subject matter, some of which pertain, at least in part, to subject matter that might be relevant to our NGM282, NGM313, NGM386, NGM395, NGM217, NGM120 and NGM621 product candidates. However, we may not be aware of all third-party intellectual property rights potentially relating to our product candidates and technologies.

Depending on what patent claims ultimately issue and how courts construe the issued patent claims, as well as depending on the ultimate formulation and method of use of our product candidates, we may need to obtain a license under such patents. There can be no assurance that such licenses will be available on commercially reasonable terms, or at all. If a third party does not offer us a necessary license or offers a license only on terms that are unattractive or unacceptable to us, we might be unable to develop and commercialize one or more of our product candidates, which would have a material adverse effect on our business, financial condition and results of operations. Moreover, even if we obtain licenses to such intellectual property, but subsequently fail to meet our obligations under our license agreements, or such license agreements are terminated for any other reasons, we may lose our rights to in-licensed technologies.

The licensing or acquisition of third-party intellectual property rights is a competitive area, and several more established companies may pursue strategies to license or acquire third-party intellectual property rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We also may be unable to license or acquire third-party intellectual property rights on terms that would allow us to make an appropriate return on our investment, or at all. If we are unable to successfully obtain rights to required third-party intellectual property rights or maintain the existing intellectual property rights we have, we may have to abandon development of the relevant program or product candidate, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

We may become involved in lawsuits or other proceedings to protect or enforce our intellectual property, which could be expensive, time-consuming and unsuccessful and have a material adverse effect on the success of our business.

Third parties may infringe our or our collaborator's patents or misappropriate or otherwise violate our or our collaborator's intellectual property rights. In the future, we or our collaborator may initiate legal proceedings to enforce or defend our or our collaborator's intellectual property rights, to protect our or our collaborator's trade secrets or to determine the validity or scope of intellectual property rights we own or control. Also, third parties may initiate legal proceedings against us or our collaborator to challenge the validity or scope of intellectual property rights we own, control or to which we have rights. For example, generic or biosimilar drug manufacturers or other competitors or third parties may challenge the scope, validity or enforceability of our or our collaborator's patents, requiring us or our collaborator to engage in complex, lengthy and costly litigation or other proceedings. These proceedings can be expensive and time-consuming and many of our or our collaborator's adversaries in these proceedings may have the ability to dedicate substantially greater resources to prosecuting these legal actions than we or our collaborator can. Accordingly, despite our or our collaborator's efforts, we or our collaborator may not be able to prevent third parties from infringing upon or misappropriating intellectual property rights we own, control or have rights to, particularly in countries where the laws may not protect those rights as fully as in the United States. Litigation could result in substantial costs and diversion of management resources, which could harm our business and financial results. In addition, if we or our collaborator initiated legal proceedings against a third party to enforce a patent covering a product candidate, the defendant could counterclaim that such patent is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. In an infringement or declaratory judgment proceeding, a court may decide that a patent owned by or licensed to us is invalid or unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our or our collaborator's patents do not cover the technology in question. An adverse result in any litigation proceeding could put one or more of our or our collaborator's patents at risk of being invalidated, narrowed, held unenforceable or interpreted in such a manner that would not preclude third parties from entering the market with competing products.

Third-party pre-issuance submission of prior art to the USPTO, or opposition, derivation, revocation, reexamination, *inter partes* review or interference proceedings, or other pre-issuance or post-grant proceedings or other patent office proceedings or litigation in the United States or other jurisdictions provoked by third parties or brought by us or our collaborator, may be necessary to determine the inventorship, priority, patentability or validity of inventions with respect to our or our collaborator's patents or patent applications. An unfavorable outcome could leave our technology or product candidates without patent protection, allow third parties to commercialize our technology or product candidates and compete directly with us, without payment to us, or could require us or our collaborator to obtain license rights from the prevailing party in order to be able to manufacture or commercialize our product candidates without infringing third-party patent rights. Our business could be harmed if the prevailing party does not offer us or our collaborator a license on commercially reasonable terms, or at all. Even if we or our collaborator obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us or our collaborator. In addition, if the breadth or strength of protection provided by our or our collaborator's patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates. Even if we successfully defend such litigation or proceeding, we may incur substantial costs and it may distract our management and other employees.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, many foreign jurisdictions have rules of discovery that are different than those in the United States and which may make defending or enforcing our or our collaborator's patents extremely difficult. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of shares of our common stock.

Third parties may initiate legal proceedings against us alleging that we infringe their intellectual property rights or we may initiate legal proceedings against third parties to challenge the validity or scope of intellectual property rights controlled by third parties, the outcome of which would be uncertain and could have a material adverse effect on the success of our business.

Our commercial success depends upon our ability and the ability of our collaborator to develop, manufacture, market and sell any product candidates that we may develop and use our proprietary technologies without infringing, misappropriating or otherwise violating the intellectual property and proprietary rights of third parties. The biotechnology and pharmaceutical industries are characterized by extensive litigation regarding patents and other intellectual property rights. Third parties may initiate legal proceedings against us or our collaborator alleging that we or our collaborator infringe their intellectual property rights or we or our collaborator may initiate legal proceedings against third parties to challenge the validity or scope of intellectual property rights controlled by third parties, including in oppositions, interferences, revocations, reexaminations, *inter partes* review or derivation proceedings before the USPTO or its counterparts in other jurisdictions. These proceedings can be expensive and time-consuming and many of our or our collaborator's adversaries in these proceedings may have the ability to dedicate substantially greater resources to prosecuting these legal actions than we or our collaborator can.

For example, through our European representative, we filed an opposition in the European Patent Office, or EPO, to a patent granted to St. Vincent's Hospital Sydney Limited, or St. Vincent's, claiming the use of MIC-1, also known as GDF15, in the treatment of obesity. In the first instance proceedings, the Opposition Division at the EPO upheld the patent as granted. We have appealed this decision to the Board of Appeals at the EPO and recently filed our grounds for appeal. The St. Vincent's patent as granted is currently scheduled to expire in April 2025. Even should the patent be upheld on appeal, we and our collaborator do not believe that NGM386 and/or NGM395 would be commercially launched until after expiration of the patent. In addition, we and our collaborator have filed an opposition in the EPO to a patent granted to Amgen Inc., or Amgen, claiming the use of GDF15 polypeptides for the treatment of several metabolic disorders, but not currently including obesity, the indication for which we are presently pursuing regulatory approval. The preliminary opinion of the Opposition Division at the EPO has implicitly confirmed that the patent claims do not include the treatment of obesity, but there can be no assurance that the Opposition Division will confirm its preliminary opinion. The Opposition Division has scheduled oral proceedings for March 2019. The Amgen patent as granted is currently scheduled to expire in April 2032. If these patents have not expired, or are not invalidated in the opposition proceedings and appeals, and/or our non-infringement positions are not upheld, and these patents are successfully asserted against us in a European country court proceeding after the approval of either of our NGM386 or NGM395 product candidates for the treatment of obesity in Europe, then we may be required to obtain licenses to such patents in order to commercialize our GDF15 program product candidates, and there can be no assurance that such licenses would be available on commercially reasonable terms, or at all.

An unfavorable outcome in any such proceeding could require us or our collaborator to cease using the related technology or developing or commercializing our product candidates, or to attempt to

license rights to it from the prevailing party, which may not be available on commercially reasonable terms, or at all.

We could be found liable for monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, which could materially harm our business.

We perform searches of patent and scientific databases in order to identify documents that may be of potential relevance to the freedom-to-operate and/or patentability of our product candidates. In general, such searches are conducted based on keywords, sequences, inventors/authors and assignees/entities to capture U.S. and European patents and patent applications, PCT publications and scientific journal articles.

The patent landscape around our NGM282, NGM313, NGM386, NGM395, NGM217, NGM120 and NGM621 product candidates is complex, and we are aware of several third-party patents and patent applications containing claims directed to compositions of matter, methods of use and related subject matter, some of which pertain, at least in part, to subject matter that might be relevant to our NGM282, NGM313, NGM386, NGM395, NGM217, NGM120 and NGM621 product candidates. However, we may not be aware of all third-party intellectual property rights potentially relating to our product candidates and technologies. If not otherwise found to be invalid or unenforceable, we are not aware of any facts that would lead us to conclude that the claims of such third-party patents would reasonably be interpreted to encompass our product candidates. As to pending third-party applications, we cannot predict with any certainty which claims will issue, if any, or the scope of such issued claims. Even if we believe third-party intellectual property claims are without merit, there is no assurance that a court would find in our favor on questions of infringement, validity, enforceability or priority. A court of competent jurisdiction could hold that these third-party patents are valid, enforceable and infringed, which could materially and adversely affect our ability and the ability of our collaborator to commercialize any product candidates we may develop and any other product candidates or technologies covered by the asserted third-party patents. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent. If any such third-party patents (including those that may issue from such applications) were successfully asserted against us or our collaborator or other commercialization partners and we were unable to successfully challenge the validity or enforceability of any such asserted patents, then we or our collaborator and other commercialization partners may be prevented from commercializing our product candidates, or may be required to pay significant damages, including treble damages and attorneys' fees if we are found to willfully infringe the asserted patents, or obtain a license to such patents, which may not be available on commercially reasonable terms, or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. Any of the foregoing would have a material adverse effect on our business, financial condition and operating results.

We may be subject to claims by third parties asserting that our employees or we have misappropriated a third party's intellectual property, or claiming ownership of what we regard as our own intellectual property.

Many of our employees, including our senior management, were previously employed at universities or at other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Some of these employees executed proprietary rights, non-disclosure and

non-competition agreements in connection with such previous employment. Although we try to ensure that our employees do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these employees have used or disclosed confidential information or intellectual property, including trade secrets or other proprietary information, of any such employee's former employer, or that third parties have an interest in our patents as an inventor or co-inventor. Litigation may be necessary to defend against these claims. If we fail in prosecuting or defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel or sustain other damages. Such intellectual property rights could be awarded to a third party, and we could be required to obtain a license from such third party to commercialize our technology or products. Such a license may not be available on commercially reasonable terms, or at all. Even if we successfully prosecute or defend against such claims, litigation could result in substantial costs and distract management.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Such claims could have a material adverse effect on our business, financial condition, results of operations and prospects.

If we breach any license agreement related to our product candidates, we could lose the ability to continue the development and commercialization of our product candidates.

Our commercial success depends upon our ability, and the ability of our licensors and collaborator, to develop, manufacture, market and sell our product candidates and use our and our collaborator's proprietary technologies without infringing the proprietary rights of third parties. A third party may hold intellectual property rights, including patent rights, that are important or necessary to the development of our products. As a result, we are a party to a number of technology licenses that are important to our business and expect to enter into additional licenses in the future. If we fail to comply with the obligations under these agreements, including payment and diligence obligations, our licensors may have the right to terminate these agreements, in which event we may not be able to develop, manufacture, market or sell any product that is covered by these agreements or to engage in any other activities necessary to our business that require the freedom-to-operate afforded by the agreements, or we may face other penalties under the agreements. For example, we are party to a license agreement with Lonza Sales AG, or Lonza Sales, under which we license cell lines used to produce our product candidates that are currently subject to our collaboration with Merck. We require Lonza Sales' prior consent to grant sub-licenses under this agreement and therefore Lonza Sales may be able to prevent us from granting sub-licenses to third parties, which could affect our ability or Merck's ability to use certain desired manufacturers in order to manufacture our product candidates. Any of the foregoing could materially adversely affect the value of the product candidate being developed under any such agreement. Termination of these agreements or reduction or elimination of our rights under these agreements may result in our having to negotiate new or amended agreements, which may not be available to us on equally favorable terms, or at all, or cause us to lose our rights under these agreements, including our rights to intellectual property or technology important to our development programs.

Our inability to protect our confidential information and trade secrets would harm our business and competitive position.

In addition to seeking patents for some of our technology and products, in our activities we also rely substantially on trade secrets, including unpatented know-how, technology and other proprietary materials and information, to maintain our competitive position. We seek to protect these trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, corporate collaborators, outside scientific collaborators, contract manufacturers, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. However, these steps may be inadequate, we may fail to enter into agreements with all such parties or any of these parties may breach the agreements and disclose our proprietary information and there may be no adequate remedy available for such breach of an agreement. We cannot assure you that our proprietary information will not be disclosed or that we can meaningfully protect our trade secrets. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts both within and outside the United States may be less willing, or unwilling, to protect trade secrets. If a competitor lawfully obtained or independently developed any of our trade secrets, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position.

Intellectual property rights do not necessarily address all potential threats.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations and may not adequately protect our business or permit us to maintain our competitive advantage. For example:

- others may be able to make products that are similar to any product candidates we may develop or utilize similar technology but that are not covered by the claims of the patents that we license or may own in the future;
- we, or our current or future collaborators, might not have been the first to make the inventions covered by the issued patents and pending patent applications that we license or may own in the future;
- we, or our current or future collaborators, might not have been the first to file patent applications covering certain of our or their inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our owned or licensed intellectual property rights;
- it is possible that our pending patent applications or those that we may own in the future will not lead to issued patents;
- issued patents that we hold rights to may be held invalid or unenforceable, including as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may not develop additional proprietary technologies that are patentable;
- the patents of others may harm our business; and
- we may choose not to file a patent application in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property.

Should any of these events occur, they could have a material adverse effect on our business, financial condition, results of operations and prospects.

Risks Related to this Offering and Ownership of Our Common Stock

We do not know whether an active, liquid and orderly trading market will develop for our common stock or what the market price of our common stock will be and, as a result, it may be difficult for you to sell your shares of our common stock.

Prior to this offering, no market for shares of our common stock existed and an active trading market for our shares may never develop or be sustained following this offering. We will determine the initial public offering price for our common stock through negotiations with the underwriters, and the negotiated price may not be indicative of the market price of our common stock after this offering. The market value of our common stock may decrease from the initial public offering price. As a result of these and other factors, you may be unable to resell your shares of our common stock at or above the initial public offering price. The lack of an active market may impair your ability to sell your shares at the time you wish to sell them or at a price that you consider reasonable. The lack of an active market may also reduce the fair market value of your shares. Furthermore, an inactive market may also impair our ability to raise capital by selling shares of our common stock and may impair our ability to enter into strategic collaborations or acquire companies or products by using shares of our common stock as consideration.

The market price of our stock may be volatile, and you could lose all or part of your investment.

The trading price of our common stock following this offering is likely to be highly volatile and subject to wide fluctuations in response to various factors, some of which we cannot control. In addition to the factors discussed in this “Risk Factors” section and elsewhere in this prospectus, these factors include:

- developments associated with our collaboration with Merck, including any non-renewal, termination or other change in our relationship with Merck;
- the success of competitive products or technologies;
- regulatory actions with respect to our product candidates or our competitors’ product candidates or products;
- results of clinical trials of our product candidates or those of our competitors;
- actual or anticipated changes in our growth rate relative to our competitors;
- announcements by us or our competitors or collaborators of significant acquisitions, strategic collaborations, joint ventures, collaborations or capital commitments;
- regulatory, legal or payor developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our product candidates or clinical development programs;
- the results of our efforts to in-license or acquire additional product candidates or products;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;

- variations in our financial results or those of companies that are perceived to be similar to us;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us, our insiders or our other stockholders;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors; and
- general economic, industry and market conditions.

In addition, the stock market in general, and the Nasdaq Global Market and biotechnology companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. The realization of any of the above risks or any of a broad range of other risks, including those described in this "Risk Factors" section, could have a dramatic and material adverse impact on the market price of our common stock.

Because of potential volatility in our trading price and trading volume, we may incur significant costs from class action securities litigation.

Holders of stock in companies that have a volatile stock price frequently bring securities class action litigation against the company that issued the stock. We may be the target of this type of litigation in the future. If any of our stockholders were to bring a lawsuit of this type against us, even if the lawsuit is without merit, we could incur substantial costs defending the lawsuit. A stockholder lawsuit could also divert the time and attention of our management. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from this offering, and you will be relying on the judgment of our management regarding the application of these proceeds. You will not have the opportunity, as part of your investment decision, to assess whether we are using the proceeds appropriately. Our management might not apply our net proceeds in ways that ultimately increase the value of your investment. If we do not invest or apply the net proceeds from this offering in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline.

Our principal stockholders, including Merck, and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

Prior to this offering and the concurrent private placement to Merck, our executive officers, directors, holders of 5% or more of our capital stock and their respective affiliates beneficially owned approximately 80.7% of our voting stock and, upon completion of this offering and the concurrent private placement to Merck, that same group will hold approximately % of our outstanding voting stock (assuming no exercise of the underwriters' option to purchase additional shares, no exercise of

outstanding options and no purchases of shares in this offering by any of this group), in each case assuming the conversion of all outstanding shares of our convertible preferred stock into shares of our common stock in connection with this offering. In particular, after this offering and the concurrent private placement, Merck could own up to approximately 19.9% of our voting stock. After this offering and the proposed concurrent private placement to Merck, this group of stockholders will have the ability to control us through this ownership position even if they do not purchase any additional shares in this offering. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders may be able to control elections of directors, amendments of our organizational documents or approval of any merger, sale of assets or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may feel are in your best interest as one of our stockholders. The interests of this group of stockholders may not always coincide with your interests or the interests of other stockholders and they may act in a manner that advances their best interests and not necessarily those of other stockholders, including seeking a premium value for their common stock, and might affect the prevailing market price for our common stock.

We are an "emerging growth company" as defined in the JOBS Act and will be able to avail ourselves of reduced disclosure requirements applicable to emerging growth companies, which could make our common stock less attractive to investors and adversely affect the market price of our common stock.

For so long as we remain an "emerging growth company" as defined in the JOBS Act, we may take advantage of certain exemptions from various requirements applicable to public companies that are not "emerging growth companies" including:

- the provisions of Section 404(b) of the Sarbanes-Oxley Act of 2002 requiring that our independent registered public accounting firm provide an attestation report on the effectiveness of our internal control over financial reporting;
- the "say on pay" provisions (requiring a non-binding shareholder vote to approve compensation of certain executive officers) and the "say on golden parachute" provisions (requiring a non-binding shareholder vote to approve golden parachute arrangements for certain executive officers in connection with mergers and certain other business combinations) of the Dodd-Frank Act and some of the disclosure requirements of the Dodd-Frank Act relating to compensation of our chief executive officer; and
- the requirement to provide detailed compensation discussion and analysis in proxy statements and reports filed under the Securities Exchange Act of 1934, as amended, or the Exchange Act, and instead provide a reduced level of disclosure concerning executive compensation.

We may take advantage of these reporting exemptions until we are no longer an emerging growth company, which in certain circumstances could be for up to five years. We will cease to be an "emerging growth company" upon the earliest of: (1) the last day of the fiscal year following the fifth anniversary of this offering; (2) the last day of the first fiscal year in which our annual gross revenue is $1.07 billion or more; (3) the date on which we have, during the previous rolling three-year period, issued more than $1 billion in non-convertible debt securities; and (4) the date on which we are deemed to be a "large accelerated filer" as defined in the Exchange Act.

Although we are still evaluating the JOBS Act, we currently intend to take advantage of some, but not all, of the reduced regulatory and reporting requirements that will be available to us so long as we qualify as an "emerging growth company." We have elected to avail ourselves of this exemption and, therefore, we are not subject to the same new or revised accounting standards as other public companies that are not emerging growth companies. As a result, changes in rules of U.S. generally accepted accounting principles or their interpretation, the adoption of new guidance or the application

of existing guidance to changes in our business could significantly affect our financial position and results of operations. In addition, our independent registered public accounting firm will not be required to provide an attestation report on the effectiveness of our internal control over financial reporting so long as we qualify as an "emerging growth company," which may increase the risk that material weaknesses or significant deficiencies in our internal control over financial reporting go undetected. Likewise, so long as we qualify as an "emerging growth company," we may elect not to provide you with certain information, including certain financial information and certain information regarding compensation of our executive officers, that we would otherwise have been required to provide in filings we make with the SEC, which may make it more difficult for investors and securities analysts to evaluate our company. We cannot predict if investors will find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock, and our stock price may be more volatile and may decline.

Future changes in financial accounting standards or practices may cause adverse and unexpected revenue fluctuations and adversely affect our reported results of operations.

Future changes in financial accounting standards may cause adverse, unexpected revenue fluctuations and affect our reported financial position or results of operations. Financial accounting standards in the United States are constantly under review and new pronouncements and varying interpretations of pronouncements have occurred with frequency in the past and are expected to occur again in the future. As a result we may be required to make changes in our accounting policies. Those changes could affect our financial condition and results of operations or the way in which such financial condition and results of operations are reported. Compliance with new accounting standards may also result in additional expenses. As a result, we intend to invest all reasonably necessary resources to comply with evolving standards, and this investment may result in increased general and administrative expenses and a diversion of management time and attention from business activities to compliance activities. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Newly Issued Accounting Pronouncements."

In particular, in May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers* (Topic 606), which supersedes the revenue recognition requirements in ASC 605, *Revenue Recognition*. The core principle of ASU 2014-09 is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. As an "emerging growth company," the JOBS Act allows us to delay adoption of new or revised accounting standards applicable to public companies until such pronouncements are made applicable to private companies. We have elected to use this extended transition period under the JOBS Act with respect to ASU 2014-09, which will result in ASU 2014-09 becoming applicable to us for the year ended December 31, 2019. While we have not completed an assessment of the impact or selected the method of adoption, the adoption of ASU 2014-09 may have a material effect on our consolidated financial statements.

We will incur increased costs as a result of operating as a public company, and our management will devote substantial time to new compliance initiatives.

As a public company, we will incur significant legal, accounting and other expenses that we did not incur as a private company, and these expenses may increase even more after we are no longer an "emerging growth company." As a public company, we will be subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Protection Act, as well as rules adopted, and to be adopted, by the SEC and the Nasdaq Global Market. Our management and other personnel will need to devote a substantial amount of time to

these compliance initiatives. Moreover, we expect these rules and regulations to substantially increase our legal and financial compliance costs and to make some activities more time-consuming and costly. The increased costs will increase our net loss. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain sufficient coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers.

Specifically, in order to comply with the requirements of being a public company, we need to undertake various actions, including implementing new internal controls and procedures and hiring new accounting or internal audit staff. The Sarbanes-Oxley Act requires that we maintain effective disclosure controls and procedures and internal control over financial reporting. We are continuing to develop and refine our disclosure controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file with the SEC is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that information required to be disclosed in reports under the Exchange Act is accumulated and communicated to our principal executive and financial officers. Any failure to develop or maintain effective controls could adversely affect the results of periodic management evaluations. In the event that we are not able to demonstrate compliance with the Sarbanes-Oxley Act, that our internal control over financial reporting is perceived as inadequate or that we are unable to produce timely or accurate financial statements, investors may lose confidence in our operating results and the price of our common stock could decline. In addition, if we are unable to continue to meet these requirements, we may not be able to remain listed on the Nasdaq Global Market.

We are not currently required to comply with the SEC's rules that implement Section 404 of the Sarbanes-Oxley Act, or Section 404, and are therefore not yet required to make a formal assessment of the effectiveness of our internal control over financial reporting for that purpose. Upon becoming a public company, we will be required to comply with certain of these rules, which will require management to certify financial and other information in our quarterly and annual reports and provide an annual management report on the effectiveness of our internal control over financial reporting commencing with our second annual report. This assessment will need to include the disclosure of any material weaknesses in our internal control over financial reporting identified by our management or our independent registered public accounting firm. To achieve compliance with Section 404 within the prescribed period, we will need to continue to dedicate internal resources, outside consultants and continue to execute a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes, as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by Section 404. If we identify one or more material weaknesses, it could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements and we cannot assure you that there will not be material weaknesses or significant deficiencies in our internal controls in the future.

Sales of a substantial number of shares of our common stock in the public market could cause our stock price to fall.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. After this offering, we will have outstanding shares of common stock based on the number of shares outstanding as of June 30,

2018, assuming: (i) no exercise of the underwriters' option to purchase up to additional shares; and (ii) the conversion of all outstanding shares of our convertible preferred stock into 94,534,932 shares of common stock upon the completion of this offering. This includes the shares that we sell in this offering, which may be resold in the public market immediately without restriction, unless purchased by our affiliates, and the private placement to Merck. Substantially all of the shares of our common stock not sold in this offering will be as a result of securities laws or lock-up agreements but will be able to be sold after this offering as described in the section titled "Shares Eligible for Future Sale." Moreover, after this offering, holders of an aggregate of 94,574,206 shares of our common stock will have rights, subject to certain conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. We also intend to register all shares of common stock that we may issue under our equity compensation plans. Once we register these shares, they can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates and the lock-up agreements described in the section titled "Underwriting."

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

The initial public offering price is substantially higher than the net tangible book value per share of our common stock. Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the book value of our tangible assets after subtracting our liabilities. As a result, investors purchasing common stock in this offering will incur immediate dilution of $ per share, based on an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover of this prospectus. Further, investors purchasing common stock in this offering will contribute approximately % of the total amount invested by stockholders since our inception, but will own only approximately % of the shares of common stock outstanding.

This dilution is due to our investors who purchased shares prior to this offering having paid substantially less than the price offered to the public in this offering when they purchased their shares including the exercise of stock options granted to our employees. As of June 30, 2018, options to purchase 19,398,203 shares of our common stock at a weighted average exercise price of $2.70 per share were outstanding, together with a warrant to purchase 39,274 shares of our Series A convertible preferred stock at an exercise price of $1.00 per share, and all options and the warrant are currently exercisable. The exercise of any of these options or the warrant would result in additional dilution. As a result of the dilution to investors purchasing shares in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of a liquidation.

We do not intend to pay dividends on our common stock so any returns will be limited to the value of our stock.

We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any return to stockholders will therefore be limited to the appreciation of their stock.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

Upon completion of this offering, we will become subject to the periodic reporting requirements of the Exchange Act. We designed our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures or internal controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

Some provisions of our charter documents, Delaware law and our collaboration agreement with Merck may have anti-takeover effects or could otherwise discourage an acquisition of us by others, even if an acquisition would benefit our stockholders and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws that will become effective upon the completion of this offering, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us or increase the cost of acquiring us, even if doing so would benefit our stockholders, or remove our current management. These provisions include:

- a board of directors divided into three classes serving staggered three-year terms, such that not all members of the board will be elected at one time;
- authorizing the issuance of “blank check” preferred stock, the terms of which we may establish and shares of which we may issue without stockholder approval;
- prohibiting cumulative voting in the election of directors, which would otherwise allow for less than a majority of stockholders to elect director candidates;
- prohibiting stockholder action by written consent, thereby requiring all stockholder actions to be taken at a meeting of our stockholders;
- eliminating the ability of stockholders to call a special meeting of stockholders; and
- establishing advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted upon at stockholder meetings.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, who are responsible for appointing the members of our management. Because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, or the DGCL, which may discourage, delay or prevent someone from acquiring us or merging with us whether or not it is desired by or beneficial to our stockholders. In addition, Section 203 of the DGCL, prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder, which is generally a person which together with its affiliates owns, or within the last three years has owned, 15% of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner.

Certain provisions in our collaboration agreements may also deter a change of control. For example, under our agreement with Merck, a change of control gives Merck the right to terminate our research and early development program as well as additional rights if our acquirer is a qualifying large pharmaceutical company or has a research, development or commercialization program that competes with a program optioned by Merck. See the section titled “Business—Our Collaboration with Merck” for more information.

Any provision of our amended and restated certificate of incorporation, amended and restated bylaws, Delaware law or our collaboration agreement with Merck that has the effect of delaying or

deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock, and could also affect the price that some investors are willing to pay for our common stock.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and the federal district courts of the United States will be the exclusive forum for certain litigation that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of a fiduciary duty; any action asserting a claim against us arising pursuant to the DGCL, our amended and restated certificate of incorporation or our amended and restated bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine. Our amended and restated certificate of incorporation further provides that the federal district courts of the United States will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. These choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees. If a court were to find either choice of forum provisions contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business.

If securities or industry analysts do not publish research, or publish inaccurate or unfavorable research, about our business, our stock price and trading volume could decline.

The trading market for our common stock will depend, in part, on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no securities or industry analysts commence coverage of our company or if they cease to cover our company, the trading price for our stock would likely be negatively impacted. In the event that securities or industry analysts initiate coverage, if one or more of the analysts who cover us downgrade our stock or publish inaccurate or unfavorable research about our business, our stock price would likely decline. In addition, if our operating results fail to meet the forecast of analysts, our stock price would likely decline. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the sections titled “Prospectus Summary,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business,” contains forward-looking statements. We may, in some cases, use words such as “anticipate,” “believe,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “should,” “will,” “would” or the negative of those terms, and similar expressions that convey uncertainty of future events or outcomes to identify these forward-looking statements. Any statements contained herein that are not statements of historical facts may be deemed to be forward-looking statements. Forward-looking statements in this prospectus include, but are not limited to, statements about:

- the success, cost and timing of our product development activities and clinical trials;
- our ability to obtain and maintain regulatory approval for NGM282, NGM313, NGM386, NGM395, NGM120, NGM217, NGM621 and any of our future product candidates, and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- our belief that NGM282 will have a superior therapeutic profile in NASH patients with moderate to advanced fibrosis based on clinical data showing reduced liver fat content, liver aminotransferase levels and fibrosis marker levels;
- our belief that NGM313 will have a superior therapeutic profile in NASH patients with early stage fibrosis that also have type 2 diabetes based on clinical data showing reduced liver fat content and liver aminotransferase levels, along with improved measures of insulin sensitivity;
- the renewal of our collaboration agreement with Merck and Merck’s decision to exercise its option to license one or more of our programs upon our completion of a proof-of-concept study in humans;
- our ability to obtain funding for our operations;
- the commercialization of our product candidates, if approved;
- our plans to research, develop and commercialize our product candidates;
- our ability to attract additional collaborators with development, regulatory and commercialization expertise;
- current and future agreements with third parties in connection with the commercialization of NGM282, NGM313, NGM386, NGM395, NGM217, NGM120 and NGM621, or any other future approved product;
- the size and growth potential of the markets for our product candidates, and our ability to serve those markets;
- the rate and degree of market acceptance of our product candidates, as well as the reimbursement coverage for our product candidates;
- regulatory developments in the United States and foreign countries;
- the performance of third-party suppliers and manufacturers;
- the success of competing therapies that are or may become available;
- our ability to attract and retain key scientific or management personnel;
- our estimates regarding future expenses, revenue, capital requirements and needs for additional financing;
- our expectations regarding the period during which we qualify as an emerging growth company under the JOBS Act;

- our use of the net proceeds from this offering; and
- our expectations regarding our ability to obtain, maintain, protect and enforce intellectual property protection for our product candidates.

These forward-looking statements reflect our management's beliefs and views with respect to future events and are based on estimates and assumptions as of the date of this prospectus and are subject to risks and uncertainties. We discuss many of these risks in greater detail under the section titled "Risk Factors." Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. Given these uncertainties, you should not place undue reliance on these forward-looking statements.

You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in this prospectus by these cautionary statements. Except as required by law, we undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise.

INDUSTRY AND MARKET DATA

This prospectus contains estimates, projections and other information concerning our industry and our business, including estimated market size, projected growth rates and the prevalence of certain medical conditions. Unless otherwise expressly stated, we obtained this industry, business, market, medical and other information from reports, research surveys, studies and similar data prepared by third parties, industry, medical and general publications, government data and similar sources.

This industry, business, market, medical and other information involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. We have not independently verified any third-party information and cannot assure you of its accuracy or completeness. Although we are responsible for all of the disclosure contained in this prospectus and we believe the market position, market opportunity, market size and medical information included in this prospectus is reliable, such information is inherently imprecise. In addition, projections, assumptions and estimates of our future performance and the future performance of the industry in which we operate is necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in the section titled “Risk Factors” and elsewhere in this prospectus. These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by us.

In some cases, we do not expressly refer to the sources from which data is derived. In that regard, when we refer to one or more sources of this type of data in any paragraph, you should assume that other data of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires.

USE OF PROCEEDS

We estimate that we will receive net proceeds of approximately $ million, or approximately $ million if the underwriters exercise their option to purchase additional shares in full, from the sale of the shares of common stock offered by us in this offering, based on an assumed initial public offering price of $ per share, the midpoint of the estimated offering price range set forth on the cover page of this prospectus, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. Additionally, we estimate that our net proceeds from the proposed concurrent private placement to Merck will be $ million.

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the midpoint of the estimated offering price range set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering by approximately $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, along with the number of shares to be sold to Merck in the proposed concurrent private placement, remain the same and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, and the net proceeds from the proposed concurrent private placement with Merck by approximately $ million.

Similarly, a 1.0 million share increase (decrease) in the number of shares offered by us would increase (decrease) the net proceeds to us by $ million, assuming the assumed initial public offering price of $ per share, the midpoint of the estimated offering price range set forth on the cover page of this prospectus, remains the same, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, and the net proceeds from the proposed concurrent private placement with Merck by approximately $ million.

The principal purposes of this offering are to obtain additional capital to support our operations, to establish a public market for our common stock and to facilitate our future access to the public equity markets. We anticipate that we will use the net proceeds of this offering and the proposed concurrent private placement to Merck, together with our existing cash, cash equivalents and short-term marketable securities, for the following purposes:

- approximately $ million to fund the development of the NGM282 program and related product candidates; and
- the remainder to fund development of our other programs, including our early-stage drug discovery programs, and pre-commercialization activities, and for working capital and general operating expenses.

We may also use a portion of the remaining net proceeds to in-license, acquire, or invest in complementary businesses, technologies, products or assets. However, we have no current commitments or obligations to do so.

We believe that the net proceeds from this offering and the proposed concurrent private placement to Merck, together with our existing cash, cash equivalents and short-term marketable securities and the funding we expect to receive under the initial term of our agreement with Merck, will be sufficient to fund our operations through 2021. In particular, we expect that these funds will allow us to complete our ongoing Phase 2 and planned Phase 2b clinical trials and begin preparation for Phase 3 clinical trials of NGM282 for NASH. However, changing circumstances may cause us to consume capital significantly faster than we currently anticipate, and we may need to spend more money than currently expected because of circumstances beyond our control.

Our expected use of net proceeds from this offering represents our current intentions based upon our present plans and business condition. As of the date of this prospectus, we cannot predict with

certainty all of the particular uses for the net proceeds to be received upon the completion of this offering, or the amounts that we will actually spend on the uses set forth above. The amounts and timing of our actual use of the net proceeds will vary depending on numerous factors, including the progress of our clinical trials and other development efforts for our product candidates and other factors described in the section titled “Risk Factors,” as well as the amount of cash we use in our operations. As a result, our management will have broad discretion in the application of the net proceeds, and investors will be relying on our judgment regarding the application of the net proceeds of this offering. In addition, we might decide to postpone or not pursue clinical trials or preclinical activities if the net proceeds from this offering and the other sources of cash are less than expected.

Pending their use, we plan to invest the net proceeds from this offering in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business. We do not intend to pay cash dividends on our common stock for the foreseeable future. Any future determination related to our dividend policy will be made at the discretion of our board of directors and will depend upon, among other factors, our results of operations, financial condition, capital requirements, contractual restrictions, business prospects and other factors our board of directors may deem relevant.

CAPITALIZATION

The following table sets forth our cash, cash equivalents and short-term marketable securities, and our capitalization as of June 30, 2018, as follows:

- on an actual basis;
- on a pro forma basis, giving effect to (1) the automatic conversion of all our outstanding convertible preferred stock as of June 30, 2018 into an aggregate of 94,534,932 shares of our common stock in connection with the completion of this offering, (2) the reclassification to additional paid-in capital of our Series A convertible preferred stock warrant liability in connection with the conversion of our outstanding Series A convertible preferred stock into a common stock warrant and (3) the filing and effectiveness of our amended and restated certificate of incorporation, which will occur upon the completion of this offering; and
- on a pro forma as adjusted basis, giving effect to the pro forma adjustments discussed above and giving further effect to the receipt of the estimated net proceeds from the sale of shares of common stock in this offering and the proposed concurrent private placement to Merck at an assumed initial public offering price and private placement purchase price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

The pro forma information below is illustrative only and our capitalization following the completion of this offering will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing. You should read this table together with the sections titled “Selected Consolidated Financial Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our condensed consolidated financial statements and the related notes included elsewhere in this prospectus.

	As of June 30, 2018 (unaudited) (in thousands, except share amounts)		
	Actual	Pro Forma	Pro Forma As Adjusted
Cash, cash equivalents and short-term marketable securities	$ 189,227	$ 189,227	$
Convertible preferred stock warrant liability	$ 121	$ —	$
Convertible preferred stock, $0.001 par value; 96,268,206 shares authorized, 94,534,932 shares issued and outstanding, actual; no shares issued and outstanding, pro forma or pro forma as adjusted	294,874	—	
Stockholders’ equity (deficit):			
Common stock, $0.001 par value; 129,000,000 shares authorized, 12,649,712 shares issued and outstanding, actual; shares authorized, 107,184,644 shares issued and outstanding, pro forma; issued and outstanding, pro forma as adjusted	13	107	
Additional paid-in capital	30,877	325,778	
Accumulated other comprehensive loss	(498)	(498)	
Accumulated deficit	(153,841)	(153,841)	
Total stockholders’ equity (deficit)	(123,449)	171,546	
Total capitalization	$ 171,546	$ 171,546	$

The number of shares of our common stock outstanding after the offering is based on 107,184,644 shares of our common stock outstanding as of June 30, 2018 (including convertible preferred stock then outstanding on an as-converted basis), and excludes:

- 19,398,203 shares of our common stock issuable upon the exercise of stock options outstanding as of June 30, 2018 at a weighted-average exercise price of $2.70 per share;
- 39,274 shares of our common stock (on an as-converted basis) issuable upon exercise of an outstanding Series A convertible preferred stock warrant at an exercise price of $1.00 per share, of which all shares are currently exercisable;
- shares of our common stock (including 1,193,038 shares of our common stock reserved for future issuance under the 2018 Plan, as of June 30, 2018), reserved for future issuance under the Restated 2018 Plan, which will become effective immediately prior to the completion of this offering, as well as any automatic increase in the number of shares of common stock reserved for future issuance under this benefit plan;
- shares of our common stock to be reserved for future issuance under the ESPP, which will become effective immediately prior to the completion of this offering, as well as any automatic increase in the number of shares of common stock reserved for future issuance under this benefit plan; and
- 73,503 shares of our common stock reserved for future issuance under our NGM Biopharmaceuticals Matching Plan, or the 401(k) Matching Plan, as of June 30, 2018.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be immediately diluted to the extent of the difference between the initial public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock after this offering.

Our historical net tangible book value (deficit) as of June 30, 2018 was approximately $(123.4) million, or $(9.76) per share of our common stock. Our historical net tangible book deficit is the amount of our total tangible assets less our liabilities and convertible preferred stock, which is not included within stockholders' deficit. Historical net tangible book deficit per share is our historical net tangible book deficit divided by the number of shares of common stock outstanding as of June 30, 2018.

Our pro forma net tangible book value as of June 30, 2018 was $171.5 million, or $1.60 per share of common stock. Pro forma net tangible book value gives effect to the conversion of all of our outstanding convertible preferred stock into an aggregate of 94,534,932 shares of our common stock and the reclassification to additional paid-in capital of our Series A convertible preferred stock warrant liability in connection with the conversion of our outstanding Series A convertible preferred stock warrant into a common stock warrant, which are included in stockholders' equity, which will occur automatically in connection with the completion of this offering.

Pro forma as adjusted net tangible book value is our pro forma net tangible book value, plus the effect of the sale of up to shares of our common stock in this offering and the proposed concurrent private placement to Merck at an assumed initial public offering price and private placement purchase price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. This amount represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to our existing stockholders, and an immediate dilution of $ per share to new investors participating in this offering.

The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share		$
Historical net tangible book value (deficit) per share as of June 30, 2018	$(9.76)	
Pro forma net tangible book value per share as of June 30, 2018 before giving effect to this offering and the concurrent private placement	1.60	
Increase in pro forma net tangible book value per share attributable to investors participating in this offering and the concurrent private placement		
Pro forma as adjusted dilution per share to investors participating in this offering and the concurrent private placement		$

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted net tangible book value per share after this offering and the proposed concurrent private placement to Merck by approximately $ per share and the dilution in pro forma per share to new investors participating in this offering by approximately $ per share, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, along with the number of shares to be sold to Merck in the proposed concurrent private placement remains the same and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

Similarly, each increase (decrease) of 1,000,000 shares in the number of shares offered by us would increase (decrease) the pro forma as adjusted net tangible book value per share after this offering and the proposed concurrent private placement to Merck by approximately $ and decrease (increase) the dilution in pro forma per share to investors participating in this offering by approximately $, assuming an initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters exercise in full their option to purchase additional shares of our common stock in this offering, the pro forma as adjusted net tangible book value would be $ per share, representing an immediate increase in pro forma as adjusted net tangible book value to existing stockholders of $ per share, and the dilution to new investors purchasing shares in this offering would be $ per share.

The following table summarizes, on a pro forma as adjusted basis as of June 30, 2018, the number of shares of our common stock, the total consideration and the average price per share (i) paid to us by our existing stockholders and (ii) to be paid by new investors participating in this offering and the proposed concurrent private placement at to Merck an assumed initial public offering price and private placement purchase price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, before deducting underwriting discounts and commissions and estimated offering expenses payable by us.

	Total Shares		Total Consideration		Average Price per Share
	Number	Percent	Amount	Percent	
Existing stockholders before this offering		%	$	%	$
Merck participation in the proposed concurrent private placement					
Investors participating in this offering					
Total		100%	$	100%	$ —

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the total consideration paid by investors participating in this offering and the total consideration paid by all stockholders by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and before deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

Similarly, each increase (decrease) of 1,000,000 shares in the number of shares offered by us would increase (decrease) the total consideration paid by investors participating in this offering and total consideration paid by all stockholders by $ million, assuming the estimated initial public offering price of $ per share (the midpoint of the price range set forth on the cover page of this prospectus) remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters exercise their option in full to purchase additional shares of our common stock in this offering, the number of shares of common stock held by existing stockholders will be reduced to % of the total number of shares of common stock to be outstanding after this offering and the proposed concurrent private placement to Merck, and the number of shares of common stock held by investors participating in this offering will be further increased to , or % of the total number of shares of common stock to be outstanding after this offering and the proposed concurrent private placement to Merck.

The foregoing discussion and tables are based on 107,184,644 shares of our common stock outstanding as of June 30, 2018 (including convertible preferred stock then outstanding on an as-converted basis), and excludes:

- 19,398,203 shares of our common stock issuable upon the exercise of stock options outstanding as of June 30, 2018 at a weighted-average exercise price of $2.70 per share;
- 39,274 shares of our common stock (on an as-converted basis) issuable upon exercise of an outstanding Series A convertible preferred stock warrant at an exercise price of $1.00 per share, of which all shares are currently exercisable;
- shares of our common stock (including 1,193,038 shares of our common stock reserved for future issuance under the 2018 Plan, as of June 30, 2018), reserved for future issuance under the Restated 2018 Plan, which will become effective immediately prior to the completion of this offering, as well as any automatic increase in the number of shares of common stock reserved for future issuance under this benefit plan;
- shares of our common stock to be reserved for future issuance under the ESPP, which will become effective immediately prior to the completion of this offering, as well as any automatic increase in the number of shares of common stock reserved for future issuance under this benefit plan; and
- 73,503 shares of our common stock reserved for future issuance under our NGM Biopharmaceuticals Matching Plan, or the 401(k) Matching Plan, as of June 30, 2018.

We may choose to raise additional capital through the sale of equity or convertible debt securities due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent we issue additional shares of common stock or other equity or convertible debt securities in the future, there will be further dilution to investors participating in this offering.

SELECTED CONSOLIDATED FINANCIAL DATA

The following selected consolidated financial data should be read together with our consolidated financial statements and related notes, and condensed consolidated financial statements and related notes, and "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this prospectus. We derived the selected consolidated statement of operations data for the years ended December 31, 2016 and 2017 and the selected consolidated balance sheet data as of December 31, 2016 and 2017 from our audited consolidated financial statements and related notes appearing elsewhere in this prospectus. We derived the condensed consolidated statement of operations data for the six months ended June 30, 2017 and 2018 and the condensed consolidated balance sheet data as of June 30, 2018 from our unaudited interim condensed consolidated financial statements included elsewhere in this prospectus. We have prepared the unaudited condensed consolidated financial statements on the same basis as the audited consolidated financial statements and have included, in our opinion, all adjustments consisting only of normal recurring adjustments that we consider necessary for a fair presentation of the financial information set forth in those statements. The selected consolidated financial data in this section are not intended to replace our consolidated financial statements and the related notes, or our condensed consolidated financial statements and related notes. Our historical results are not necessarily indicative of the results to be expected in the future, and our unaudited interim results are not necessarily indicative of the results to be expected for the full year or any other period.

	Year Ended December 31,		Six Months Ended June 30,	
	2016	2017	2017	2018
			(unaudited)	
	(in thousands, except per share amounts)			
Related party collaboration revenue	$ 81,435	$ 77,141	$ 37,918	$ 40,731
Other collaboration revenue	4,154	—	—	—
Total collaboration revenue	85,589	77,141	37,918	40,731
Operating expenses:				
Research and development	82,105	79,736	40,645	42,300
General and administrative	11,845	14,830	7,643	7,332
Total operating expenses	93,950	94,566	48,288	49,632
Loss from operations	(8,361)	(17,425)	(10,370)	(8,901)
Interest income	1,806	2,358	1,048	1,643
Other income (expense), net	133	(152)	(154)	117
Net loss before taxes	(6,422)	(15,219)	(9,476)	(7,141)
Provision for (benefit from) income taxes	500	(1,060)	—	—
Net loss	$ (6,922)	$ (14,159)	$ (9,476)	$ (7,141)
Net loss per common share, basic and diluted(1)	$ (0.63)	$ (1.19)	$ (0.80)	$ (0.58)
Weighted average shares used to compute net loss per common share, basic and diluted(1)	11,064,520	11,923,534	11,774,231	12,326,850
Pro forma net loss per common share, basic and diluted (unaudited)(1)		$ (0.13)		$ (0.07)
Weighted average shares used to compute pro forma net loss per common share, basic and diluted (unaudited)(1)		106,458,466		106,861,782

(1) See Note 2 to our consolidated financial statements and condensed consolidated financial statements appearing elsewhere in this prospectus for an explanation of the method used to calculate the historical and pro forma basic and diluted net loss per share and the number of shares used in the computation of the per share amounts.

	As of December 31,		As of June 30, 2018
	2016	2017	(unaudited)
		(in thousands)	
Consolidated balance sheet data:			
Cash, cash equivalents, and short-term marketable securities	$ 230,192	$ 173,685	$ 189,227
Working capital (excluding deferred revenue)	216,067	159,998	173,395
Total assets	276,994	248,941	237,563
Total liabilities	97,182	75,045	66,138
Convertible preferred stock warrant liability	118	121	121
Convertible preferred stock	294,874	294,874	294,874
Accumulated deficit	(132,541)	(146,700)	(153,841)
Total stockholders' deficit	(115,062)	(120,978)	(123,449)

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read in conjunction with "Selected Consolidated Financial Data" and our consolidated financial statements and related notes included elsewhere in this prospectus. This discussion and analysis and other parts of this prospectus contain forward-looking statements based upon current beliefs, plans and expectations that involve risks, uncertainties and assumptions, such as statements regarding our plans, objectives, expectations, intentions and projections. Our actual results and the timing of events could differ materially from those anticipated in these forward-looking statements as a result of several factors, including those set forth under "Risk Factors" and elsewhere in this prospectus. You should carefully read the "Risk Factors" section of this prospectus to gain an understanding of the important factors that could cause actual results to differ materially from our forward-looking statements. Please also see the section titled "Special Note Regarding Forward-Looking Statements."

Overview

We are a clinical-stage biopharmaceutical company developing novel therapeutics based on our scientific understanding of key biological pathways underlying cardio-metabolic, liver, oncologic and ophthalmic diseases. These diseases are among the largest unmet medical needs globally and represent leading causes of morbidity and mortality and a significant burden for healthcare systems. Since the commencement of our operations in 2008, we have generated a robust portfolio of seven product candidates, five of which are in clinical testing. Our most advanced product candidate, NGM282, is wholly-owned and will enter Phase 2b development for the treatment of non-alcoholic steatohepatitis, or NASH, in the first quarter of 2019. In an ongoing Phase 2 clinical trial, NGM282 has demonstrated the ability to rapidly improve NASH and reverse liver fibrosis at 12 weeks. Our other programs are in Phase 1 clinical or preclinical testing and subject to our Merck collaboration described below.

In February 2015, we entered into a five-year research collaboration, product development and license agreement with Merck Sharp & Dohme Corp., or Merck, that allows us to develop multiple product candidates in parallel without bearing substantially greater costs or incurring significantly greater risk compared to developing candidates on our own. For a detailed explanation see the section "Business—Our Collaboration with Merck." Through June 30, 2018, Merck has paid us $283.3 million, of which $94.0 million was an upfront payment and $189.3 million was reimbursement of research and development expenses. Merck has the option to extend the initial five-year research phase for two additional two-year periods by paying a fee for each extension. Merck is required to communicate to us by March 17, 2019 whether it will exercise the option for the first of the two-year periods.

We have incurred net losses in each year since our inception. Our consolidated net losses were $6.9 million, $14.2 million, $9.5 million and $7.1 million for the years ended December 31, 2016 and 2017 and the six months ended June 30, 2017 and 2018, respectively. As of June 30, 2018, we had an accumulated deficit of $153.8 million. Substantially all of our net losses have resulted from costs incurred in connection with our research and development programs and from general and administrative costs associated with our operations. Our net losses may fluctuate significantly from quarter to quarter and year to year, depending on the timing of our clinical trials and our expenses on other research and development activities.

Since inception, we have funded our operations primarily through the private placement of convertible preferred stock totaling $294.9 million, upfront license fees paid by collaboration partners of $123.0 million and research and development service fees provided by collaboration partners of

$202.3 million. We do not have any products approved for sale and do not anticipate generating revenue from product sales for the foreseeable future, if ever. Accordingly, to fund further operations we may need to raise capital in addition to the net proceeds from this offering, the proposed concurrent private placement to Merck and amounts that may be available under our collaboration agreement with Merck. Until such time as we can generate meaningful revenue from product sales, if ever, we expect to finance our operating activities through public or private equity or debt financings, collaborations, strategic alliances and licensing arrangements, government or other third-party funding, or a combination of these. We may not be able to secure additional funding on terms acceptable to us, or at all, and any failure to secure funding as and when needed could compromise our ability to execute on our business plan, which could materially and adversely affect our business, financial condition and results of operations.

We have no manufacturing facilities, and all of our manufacturing activities are contracted out to third parties. Additionally, we currently utilize third-party clinical research organizations, or CROs, to carry out our clinical development and we do not have a sales organization.

Financial Operations Overview

Collaboration Revenue

Our revenue to date has been generated primarily from recognition of upfront license fees and research and development service funding pursuant to our collaboration agreements, the most significant of which is with Merck. Merck is also a significant stockholder and, as such, collaboration revenue from Merck is referred to as related party collaboration revenue. We have not generated any revenue from commercial product sales to date. We receive research and development funding pursuant to our collaboration agreements, and we may also be entitled to receive additional milestone and other contingent payments pursuant to our research collaboration product development and license agreement with Merck upon the occurrence of specific events. Due to the nature of these collaboration agreements and the nonlinearity of the related revenue recognition, our revenue has fluctuated from period to period in the past and we expect that it will continue to fluctuate in future periods. In addition, we are required to adopt ASC 606 for the year ending December 31, 2019, which may have a material impact on the timing of our revenue recognition.

The following table summarizes the sources of our collaboration revenue for the years ended December 31, 2016 and 2017, and six months ended June 30, 2017 and 2018:

	Year Ended December 31,		Six Months Ended June 30,	
	2016	2017	2017	2018
			(unaudited)	
	(in thousands)			
Related party collaboration revenue				
Recognition of upfront license fee	$18,800	$18,800	$ 9,400	$ 9,400
Collaboration service revenue	62,635	58,341	28,518	31,331
Total related party collaboration revenue	81,435	77,141	37,918	40,731
Other collaboration revenue				
Recognition of upfront license fee	3,773	—	—	—
Collaboration service revenue	381	—	—	—
Total other collaboration revenue	4,154	—	—	—
Total collaboration revenue	$85,589	$77,141	$37,918	$40,731

Research and Development Expenses

Research and development efforts relating to our product candidates include manufacturing drug substance, drug product and clinical trial material, conducting preclinical testing and clinical trials and providing support for these operations.

Our research and development expenses consist of both internal and external costs. Our internal costs include employee, consultant, facility and other research and development operating expenses. Our external costs include fees paid to CROs and other service providers in connection with our clinical trials and preclinical studies, third party license fees and costs related to acquiring and manufacturing drug substance, drug product and clinical trial materials.

Our clinical development efforts are focused on multiple programs. Our lead product candidate, NGM282, is the subject of ongoing and planned Phase 2 clinical trials for NASH. We anticipate the majority of our financial resources outside of the Merck collaboration will be dedicated to the development of NGM282 for the foreseeable future, however, we may also devote financial resources to the development of our other programs in the event Merck does not elect to license these programs upon completion of a proof-of-concept study. Additionally, if our research and development expenses were to exceed the funding caps provided in our collaboration agreement with Merck, we could be required to devote our financial resources toward the development of those programs subject to the collaboration.

The NGM282 clinical trials we have initiated or plan to initiate include: (1) a 24-week expansion cohort of NGM282 (cohort 4) under our ongoing Phase 2 protocol as a double-blind, placebo-controlled study of once-daily 1 mg NGM282 for the treatment of NASH, (2) a Phase 2b clinical trial of NGM282 in a double-blind, placebo-controlled format testing 0.3 mg and 3 mg daily doses of NGM282 for 24 weeks for the treatment of NASH and (3) a Phase 2 clinical trial of NGM282 for the treatment of NASH patients with advanced fibrosis or early cirrhosis. Significant portions of our research and development resources are focused on these clinical trials and other work needed to prepare NGM282 for regulatory approval for the treatment of NASH, including preparation for Phase 3 testing of NGM282 in NASH.

We are also conducting Phase 1 clinical trials for NGM313, NGM120 and NGM217, each of which is subject to reimbursement under our Merck collaboration up to the funding caps provided in the agreement. Our NGM313 product candidate has completed single ascending dose and multiple ascending dose Phase 1 testing in overweight or obese but otherwise healthy adults and is currently completing a Phase 1b study in obese insulin resistant subjects with nonalcoholic fatty liver disease, or NAFLD. The proposed next step is to initiate a Phase 2b clinical trial in 2019 to evaluate the effect of NGM313 on liver histology and glucose control in NASH patients with or without diabetes, subject to Merck first deciding whether to exercise its option to license NGM313. Merck has the option to license NGM313 following completion of a proof-of-concept study in humans. If Merck chooses to exercise its option to license the NGM313 program, from that point forward all development expenses will be paid for by Merck unless we elect to exercise our worldwide cost and profit sharing option at the commencement of Phase 3 testing, at which point we would be responsible for a portion of the future development expense.

NGM120 is currently in a Phase 1 clinical trial assessing safety, tolerability and pharmacokinetics. In 2019 we are planning to conduct a clinical study with NGM120 in cancer patients to explore proof of concept as an agent to treat CACS, and possibly, cancer. Merck has the option to license NGM120 following completion of a proof-of-concept study in humans.

We recently commenced a Phase 1 clinical trial with NGM217 to assess safety and tolerability and to inform dose-range finding for future studies. Thereafter, we plan to commence a Phase 1b/2a

proof-of-concept study in diabetic patients to assess the ability of the agent to increase insulin production by the pancreas. Merck has the option to license NGM217 following completion of a proof-of-concept study in humans.

NGM621 is currently in IND-enabling studies to enable initiation of a Phase 1 clinical trial in the second half of 2019. We expect the Phase 1 clinical trial will assess the safety and tolerability of a single intravitreal injection of NGM621 in patients with the dry form of age-related macular degeneration. Merck has the option to license NGM621 following completion of a proof-of-concept study in humans.

NGM386 and NGM395 were both licensed to Merck at the inception of our collaboration with Merck, and substantially all of the related research and development expenses are borne directly by Merck under our collaboration agreement; however, to enable timely progress of the programs, we continue to incur certain manufacturing related fees and expenses directly, which are then reimbursed by Merck outside the defined research funding budget in the research collaboration, product development and license agreement.

Our research and development expenses related to the development of NGM282, NGM313, NGM120, NGM217 and NGM621 consist primarily of:

- fees paid to our CROs in connection with our clinical trials, and other related clinical trial fees;
- costs related to acquiring and manufacturing drug substance, drug product and clinical trial materials, including continued testing, such as process validation and stability, of drug substance and drug product;
- costs related to toxicology testing and other research and preclinical related studies;
- salaries and related overhead expenses, which include stock-based compensation and benefits, for personnel in research and development functions;
- fees paid to consultants for research and development activities;
- research and development operating expenses, including facility costs and depreciation expenses; and
- costs related to compliance with regulatory requirements.

The process of supplying materials for, and conducting, preclinical studies and clinical trials necessary to obtain regulatory approval of our product candidates is costly and time consuming. We may never succeed in achieving marketing approval for our product candidates. The success of each product candidate may be affected by numerous factors, including preclinical data, clinical data, competition, manufacturing capability, our sales capabilities, our ability to work effectively with our collaboration partners, regulatory matters, third-party payor matters and commercial viability.

The following is a comparison of research and development expenses for the years ended December 31, 2016 and 2017, and the six months ended June 30, 2017 and 2018:

	Year Ended December 31,		Six Months Ended June 30,	
	2016	2017	2017	2018
			(unaudited)	
	(in thousands)			
External research and development expenses:				
NGM282 (FGF19 analog)	$11,325	$15,126	$ 8,490	$ 5,393
NGM313 (FGFR1c/KLB agonist)	4,485	3,948	2,102	1,643
NGM386, NGM395 (GDF15 analogs)	8,083	787	419	743
NGM120 (GFRAL antagonist)	5,643	3,621	2,020	1,639
NGM217 (undisclosed)	6,290	3,764	2,316	1,241
NGM621 (undisclosed)	—	186	—	1,976
Total external research and development expenses	35,826	27,432	15,347	12,635
Internal and unallocated research and development expenses(1)	46,279	52,304	25,298	29,665
Total research and development expenses	$82,105	$79,736	$40,645	$42,300

(1) Internal and unallocated research and development expenses consist mainly of employee compensation, research supplies and consulting fees, which we deploy across multiple research and development programs.

The successful development of our product candidates is highly uncertain. At this time, we cannot reasonably estimate the nature, timing or costs of the efforts that will be necessary to complete the remainder of the development of our product candidates or the period, if any, in which material net cash inflows from these product candidates may commence. This is due to the numerous risks and uncertainties associated with developing drugs, including the uncertainty of:

- our ability to hire and retain key research and development personnel;
- whether Merck will elect to license any of our programs and the timing of such election;
- the scope, rate of progress, results and expense of our ongoing, as well as any additional, clinical trials and other research and development activities; and
- the timing and receipt of any regulatory approvals.

A change in the outcome of any variables with respect to the development of a product candidate could mean a significant change in the costs and timing associated with the development of that product candidate. For example, if the FDA or another regulatory authority were to require us to conduct clinical trials beyond those that we currently anticipate will be required for the completion of clinical development of a product candidate, or if we experience significant delays in enrollment in any of our clinical trials, we could be required to expend significant additional financial resources and time on the completion of clinical development.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries and other related costs, including stock-based compensation. Other significant costs include legal fees relating to patent and corporate matters, facility costs not otherwise included in research and development expenses and fees for accounting and other consulting services.

We anticipate that our general and administrative expenses will increase in the future to support our continued research and development activities and potential commercialization of our product candidates. These increases will likely include increased costs related to the hiring of additional personnel and fees to outside consultants, lawyers and accountants, among other expenses. Additionally, we anticipate increased costs associated with being a public company, including expenses related to services associated with maintaining compliance with Nasdaq listing rules and related SEC requirements and insurance and investor relations costs. In addition, we may incur expenses associated with building a commercial organization in connection with, and prior to, potential future regulatory approval of our product candidates.

Results of Operations

Comparison of the Six Months Ended June 30, 2017 and 2018 (Unaudited)

The following table summarizes our results of operations for the six months ended June 30, 2017 and 2018 (in thousands):

	Six Months Ended June 30,			
	2017	2018	Change ($)	Change (%)
Related party collaboration revenue	$ 37,918	$40,731	$ 2,813	7%
Other collaboration revenue	—	—	—	—
Total collaboration revenue	37,918	40,731	2,813	7%
Operating expenses:				
Research and development	40,645	42,300	1,655	4%
General and administrative	7,643	7,332	(311)	(4)%
Total operating expenses	48,288	49,632	1,344	3%
Loss from operations	(10,370)	(8,901)	(1,469)	(14%)
Interest income	1,048	1,643	595	57%
Other income (expense), net	(154)	117	271	176%
Net loss before income taxes	(9,476)	(7,141)	(2,335)	(25%)
Net loss	$ (9,746)	$ (7,141)	$ (2,335)	(25%)

Total Collaboration Revenue. For the six months ended June 30, 2017 and 2018, the Company recognized total collaboration revenue of $37.9 million and $40.7 million, of which $9.4 million in both periods was related to the upfront payment from Merck. The increase of $2.8 million in collaboration revenue was due to an increase in development activities under our collaboration agreement with Merck.

Research and Development Expenses. Research and development expenses were $40.6 million and $42.3 million for the six months ended June 30, 2017 and 2018, respectively. The increase in research and development expenses of $1.7 million was primarily due to an increase of $2.0 million in external expenses associated with the preclinical phase of the NGM621 program that began during 2018, and a $4.4 million increase in unallocated personnel related expenses. These increases were partially offset by a decrease of $3.1 million in NGM282 program expenses, primarily due to the completion of the NGM282 program PSC clinical trial, and a $1.4 million decrease in the NGM217 program external expenses due to the completion of the preclinical phase in 2016, which required a larger amount of expenses related to clinical product and start-up costs.

General and Administrative Expenses. General and administrative expenses were $7.6 million and $7.3 million for the six months ended June 30, 2017 and 2018, respectively. The

decrease in general and administrative expenses of $0.3 million was primarily due to an decrease in personnel expenses.

Interest Income. Interest income was $1.0 million and $1.6 million for the six months ended June 30, 2017 and 2018, respectively. The increase in interest income of $0.6 million was due to higher interest rates on marketable securities in 2018.

Other Income (Expense), Net. Other income (expense), net was $(0.2) million and $0.1 million for the six months ended June 30, 2017 and 2018, respectively. The increase in other income (expense), net of $0.3 million primarily consisted of a $0.2 million increase in foreign currency-related gains associated within our monetary assets and liabilities held in NGM Biopharmaceuticals Australia Pty Ltd., a wholly owned subsidiary.

Comparison of the Years Ended December 31, 2016 and 2017

The following table summarizes our results of operations for the years ended December 31, 2016 and 2017:

	Year Ended December 31,			
	2016	2017	Change ($)	Change (%)
	(in thousands)			
Related party collaboration revenue	$81,435	$ 77,141	$ (4,294)	(5%)
Other collaboration revenue	4,154	—	(4,154)	(100%)
Total collaboration revenue	85,589	77,141	(8,448)	(10%)
Operating expenses:				
Research and development	82,105	79,736	(2,369)	(3%)
General and administrative	11,845	14,830	2,985	25%
Total operating expenses	93,950	94,566	616	1%
Loss from operations	(8,361)	(17,425)	9,064	108%
Interest income	1,806	2,358	552	31%
Other income (expense), net	133	(152)	(285)	(214%)
Net loss before taxes	(6,422)	(15,219)	8,797	137%
Provision for (benefit from) income taxes	500	(1,060)	(1,560)	(312%)
Net loss	$ (6,922)	$(14,159)	$ 7,237	105%

Total Collaboration Revenue. Total collaboration revenue was $85.6 million and $77.1 million for the years ended December 31, 2016 and 2017, respectively. The decrease of $8.4 million in total collaboration revenue was due to a decrease of $4.2 million in collaboration service revenue from Merck during the year ended December 31, 2017 and a decrease of $4.2 million in collaboration service revenue from MedImmune Limited, or MedImmune, due to termination of our collaboration agreement with MedImmune in August 2016. See note 5 to our consolidated financial statements included elsewhere in this prospectus for additional information regarding collaboration service revenue from MedImmune.

Research and Development Expenses. Research and development expenses were $82.1 million and $79.7 million for the years ended December 31, 2016 and 2017, respectively. The decrease in research and development expenses of $2.4 million was primarily attributable to a decrease of $7.3 million in the NGM386 and NGM395 external expenses, a decrease of $2.5 million in the NGM217 program external expenses and a decrease of $2.0 million in the NGM120 program external expenses, which were partially offset by increases of $3.8 million in the NGM282 program external expenses and $6.0 million in unallocated research and development expenses.

The decreases in the NGM386 and NGM395 external expenses are due to Merck's assumption of the future development and expenses associated with these product candidates under our collaboration agreement. The decrease in the NGM217 program external expenses is due to the completion of the preclinical phase in 2016, which required a larger amount of expenses related to clinical product and start-up costs. The decrease in the NGM120 program external expenses is due to the substantial completion of the preclinical phase in 2016, as the Phase 1 clinical trials did not begin until 2018.

The increase in the NGM282 program external expenses resulted primarily from activities and drug supply for clinical trials required for the NASH clinical trials performed during 2017. The increase in unallocated research and development expenses is primarily due to personnel related expenses attributable to lab supplies, and depreciation expense on lab equipment purchased in relation to the build out of our new laboratory space in relation to the relocation of our corporate headquarters during 2016.

General and Administrative Expenses. General and administrative expenses were $11.8 million and $14.8 million for the years ended December 31, 2016 and 2017, respectively. The increase in general and administrative expenses of $3.0 million was primarily due to increases of $1.5 million related to personnel expenses and $1.0 million related to professional fees and contract services.

Interest Income. Interest income was $1.8 million and $2.4 million for the years ended December 31, 2016 and 2017, respectively. The increase in interest income of $0.6 million was primarily attributable to higher yields on our available-for-sale marketable securities in 2017 compared to 2016.

Provision for (Benefit from) Income Taxes. Provision for (benefit from) income taxes was $0.5 million and $(1.1) million for the years ended December 31, 2016 and 2017, respectively. The provision for income taxes in 2016 was related to federal alternative minimum tax. The benefit from income taxes in 2017 was due to a federal alternative minimum tax credit carryforward that became refundable as a result of the Tax Cuts and Jobs Act of 2017.

Liquidity and Capital Resources

We have incurred losses and negative cash flows from operating activities since our inception. As of June 30, 2018, our operations have been financed primarily through the private placement of convertible preferred stock totaling $294.9 million, upfront license fees paid by collaboration partners of $123.0 million and research and development funding provided by collaboration partners of $202.3 million. As of June 30, 2018, we had cash and cash equivalents of $38.9 million, short-term marketable securities of $150.3 million, working capital (excluding deferred revenue) of $173.4 million and an accumulated deficit of $153.8 million, compared to cash and cash equivalents of $25.6 million, short-term marketable securities of $148.1 million, working capital (excluding deferred revenue) of $160.0 million and an accumulated deficit of $146.7 million at December 31, 2017.

We anticipate that we will continue to incur net losses for the foreseeable future as we continue the development of our product candidates, expand our corporate infrastructure, including the costs associated with becoming a public company, and conduct pre-commercialization activities. We will require substantial additional capital to achieve our development and commercialization goals for NGM282, for any Merck licensed programs that we opt to co-develop and for any programs that Merck does not opt to develop and that we choose to develop. If our Merck collaboration were to be terminated, we could require significant additional capital in order to proceed with development and

commercialization of our product candidates, or we may require additional partnering in order to help fund such development and commercialization. We plan to continue to fund our operations and capital funding needs through public or private equity or debt financings, government or other third-party funding, collaborations, strategic alliances and licensing arrangements or a combination of these. The sale of convertible debt or additional equity could result in additional dilution to our stockholders. The incurrence of indebtedness would result in debt service obligations and could result in operating and financing covenants that would restrict our operations. We cannot assure you that financing will be available in the amounts we need or on terms acceptable to us, if at all. If we are not able to secure adequate additional funding we may be forced to make reductions in spending, extend payment terms with suppliers, liquidate assets where possible and/or suspend or curtail planned programs. Any of these actions could materially harm our business, results of operations and future prospects.

We believe that our existing cash and cash equivalents, along with amounts available to us under our collaboration agreement with Merck will be sufficient to meet our anticipated cash requirements for at least the next 12 months. However, our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement that involves risks and uncertainties, and actual results could vary materially.

Cash Flows

The following table shows a summary of our cash flows for the years ended December 31, 2016 and 2017, and the six months ended June 30, 2017 and 2018 (in thousands):

	Year Ended December 31,		Six Months Ended June 30,	
	2016	2017	2017	2018
Net cash provided by (used in):				
Operating activities	$ 1,269	$(17,413)	$(11,334)	$ (8,754)
Investing activities	(64,707)	(2,796)	24,439	22,024
Financing activities	231	339	257	49
Net increase (decrease) in cash and cash equivalents	$(63,207)	$(19,870)	$ 13,362	$13,319

Cash Provided by (Used in) Operating Activities

During the six months ended June 30, 2018, cash used in operating activities was $8.8 million, which consisted of a net loss of $7.1 million, adjusted for non-cash charges of $7.8 million and cash used through changes in operating assets and liabilities of $9.4 million. The non-cash charges consisted primarily of stock-based compensation expense of $4.5 million and depreciation expense of $3.5 million. The change in operating assets and liabilities was primarily due to a decrease in deferred revenue of $9.9 million due to the recognition of upfront license fees from Merck and the timing of advance payments from Merck related to the reimbursement of costs associated with research and development activities. This was partially offset by an increase in accounts payable of $2.2 million.

During the six months ended June 30, 2017, cash used in operating activities was $11.3 million, which consisted of a net loss of $9.5 million, adjusted for non-cash charges of $7.3 million and cash used through changes in operating assets and liabilities of $9.1 million. The non-cash charges consisted primarily of stock-based compensation expense of $3.8 million and depreciation expense of $3.0 million. The change in operating assets and liabilities was primarily due to a decrease of accounts payable of $2.8 million, a decrease in deferred revenue of $7.4 million due to the recognition of upfront license fees from Merck and the timing of advance payments from Merck related to the reimbursement of costs associated with research and development activities, and an increase in prepaid expenses

and other assets of $1.3 million primarily related to deposits made in relation to contract manufacturing and clinical trial activities. This was partially offset by a decrease in receivable from collaboration of $2.8 million due to the timing of payments from Merck in relation to our collaboration agreement.

During the year ended December 31, 2017, cash used in operating activities was $17.4 million, which consisted of a net loss of $14.2 million, adjusted for non-cash charges of $14.5 million and cash used through changes in operating assets and liabilities of $17.7 million. The non-cash charges consisted primarily of stock-based compensation expense of $7.7 million and depreciation expense of $6.4 million. The change in operating assets and liabilities was primarily due to an increase in prepaid expenses and other assets of $1.1 million primarily resulting from a federal tax receivable generated as a result of the Tax Cuts and Jobs Act of 2017 that was signed into law in December 2017, a decrease in accounts payable of $4.2 million and a decrease in deferred revenue of $16.5 million due to the recognition of revenue related to upfront license fees from Merck and the timing of advance payments from Merck related to the reimbursement of costs associated with research and development activities. This was partially offset by a decrease in receivable from related party collaboration of $2.8 million due to payments received from Merck under the collaboration agreement and an increase in accrued expenses and other liabilities of $2.6 million resulting primarily from the timing of payments related to our clinical trial expenses and other research and development activities.

During the year ended December 31, 2016, cash provided by operating activities was $1.3 million, which consisted of a net loss of $6.9 million, adjusted for non-cash charges of $10.7 million and cash used through changes in operating assets and liabilities of $2.5 million. The non-cash changes consisted primarily of stock-based compensation expense of $6.0 million, depreciation expense of $3.5 million and amortization of the premium on marketable securities of $1.1 million. The change in operating assets and liabilities was primarily due to a decrease in deferred revenue of $23.1 million due to the recognition of revenue related to upfront license fees from Merck and MedImmune. This was partially offset by an increase in deferred rent of $16.9 million due to the tenant allowance received in relation to the relocation of our corporate headquarters and an increase in accounts payable of $2.8 million resulting primarily from costs incurred in relation to the relocation of our corporate headquarters and the timing of payments to vendors in relation to our contract manufacturing, contract research and other research and development activities.

Cash Provided by (Used in) Investing Activities

During the six months ended June 30, 2018, cash provided by investing activities was $22.0 million, which consisted of $97.3 million in proceeds from sales and maturities of marketable securities, partially offset by purchases of marketable securities of $70.2 million and purchases of property and equipment of $5.1 million.

During the six months ended June 30, 2017, cash provided by investing activities was $24.4 million, which consisted of $123.7 million in proceeds from sales and maturities of marketable securities, partially offset by purchases of marketable securities of $94.8 million and purchases of property and equipment of $4.5 million.

During the year ended December 31, 2017, cash used in investing activities was $2.8 million, which consisted of $217.3 million in purchases of marketable securities and purchases of property and equipment of $6.4 million, partially offset by proceeds from sales and maturity of marketable securities of $220.9 million.

During the year ended December 31, 2016, cash used in investing activities was $64.7 million, which consisted of $132.6 million in purchases of marketable securities and purchases of property and equipment of $24.8 million, partially offset by proceeds from sales and maturity of marketable securities of $92.6 million.

Cash Provided by (Used in) Financing Activities

During the six months ended June 30, 2018, cash used in financing activities was $0.1 million, which consisted of repurchases of common stock of $0.2 million, partially offset by proceeds from the issuance of common stock upon the exercise of previously granted stock options of $0.2 million.

During the six months ended June 30, 2017, cash provided by financing activities was $0.3 million, which consisted of proceeds from the issuance of common stock upon the exercise of previously granted stock options.

During the year ended December 31, 2017, cash provided by financing activities was $0.3 million, which consisted of proceeds from the issuance of common stock upon the exercise of previously granted stock options.

During the year ended December 31, 2016, cash provided by financing activities was $0.2 million, which consisted of proceeds from the issuance of common stock upon the exercise of previously granted stock options.

Off-Balance Sheet Arrangements

We currently have not entered into and do not have any relationships with unconsolidated entities or financial collaborations, such as entities often referred to as structured finance or special purpose entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purpose.

Contractual Obligations

Our principal obligations consist of the operating lease for our facilities and non-cancelable purchase commitments with contract manufacturers or service providers. The following table sets out, as of December 31, 2017, our contractual obligations due by period (in thousands):

	Payments due by period				
	Less than 1 year	1 to 3 years	4 to 5 years	More than 5 years	Total
Contractual obligations:					
Operating lease obligations(1)	$ 4,123	$9,844	$10,435	$ 5,455	$29,857
Total contractual obligations	$ 4,123	$9,844	$10,435	$ 5,455	$29,857

(1) Consists of our corporate headquarters lease encompassing approximately 122,000 square feet of office and laboratory space that expires in December 2023.

We enter into agreements in the normal course of business with contract research organizations for clinical trials and with vendors for preclinical studies and other services and products for operating purposes that are cancelable at any time by us, generally upon 30 days' prior written notice. These payments are not included in this table of contractual obligations.

We are obligated to make future payments to third parties under in-license agreements, including sublicense fees, low single-digit royalties and payments that become due and payable on the achievement of certain development and commercialization milestones. As the amount and timing of sublicense fees and the achievement and timing of these milestones are not probable and estimable, such commitments have not been included on our consolidated balance sheets or in the contractual obligations table above.

Quantitative and Qualitative Disclosures about Market Risk

Our cash, cash equivalents and marketable securities as of June 30, 2018 consisted of readily available checking and money market funds, as well as available-for-sale securities. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. However, because of the nature of the instruments in our portfolio, a sudden change in market interest rates would not be expected to have a material impact on our financial condition or results of operations. We believe that our exposure to interest rate risks is not significant and that a hypothetical 10% movement in market interest rates would not have a significant impact on the total value of our portfolio or our interest income. We do not believe that our cash, cash equivalents or marketable securities have significant risk of default or illiquidity. While we believe our cash, cash equivalents and marketable securities do not contain excessive risk, we cannot provide absolute assurance that in the future our investments will not be subject to adverse changes in market value. In addition, we maintain significant amounts of cash, cash equivalents and marketable securities at one or more financial institutions that are in excess of federally insured limits.

We are also exposed to market risk related to changes in foreign currency exchange rates, mainly relating to our Australian subsidiary. In addition, we contract with vendors that are located in Asia and Europe, and the payments under such contracts are denominated in foreign currencies. We are subject to fluctuations in foreign currency rates in connection with these agreements. We do not currently hedge our foreign currency exchange rate risk. As of December 31, 2016 and 2017, our liabilities denominated in foreign currencies were not material. A 10% increase or decrease in current exchange rates would not have a material effect on our financial results.

Critical Accounting Policies and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which we have prepared in accordance with U.S. generally accepted accounting principles, or U.S. GAAP. The preparation of our consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of our consolidated financial statements, as well as revenue and expenses during the reported periods. We evaluate these estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ materially from these estimates under different assumptions or conditions.

Our significant accounting policies are described in Note 1 to our consolidated financial statements appearing elsewhere in this prospectus. We believe that the following accounting policies are the most critical for fully understanding and evaluating our financial condition and results of operations.

Revenue Recognition

All of our revenue to date has been generated from our collaboration agreements. Revenue from collaboration agreements may include non-refundable upfront license fees, partial or complete reimbursement of research and development costs, contingent consideration payments based on the achievement of defined collaboration objectives and royalties on sales of any commercialized products.

Revenues from research activities made under collaboration arrangements are recognized when there is persuasive evidence that an arrangement exists, services have been rendered, the price is

fixed or determinable and collectability is reasonably assured. Revenue generated from our collaboration arrangements is not subject to repayment. Our obligations under collaboration agreements may include the transfer of intellectual property rights in the form of licenses, obligations to provide research and development services and obligations to participate on certain development committees with the collaboration party. We make judgments that affect the period over which we recognize revenue. On a quarterly basis, we review our estimated period of performance for our collaboration and license revenue based on the progress under the arrangement and account for the impact of any changes in estimated periods of performance on a prospective basis. We record amounts received prior to satisfying the above revenue recognition criteria as deferred revenue until all applicable revenue recognition criteria are met. Deferred revenue represents the portion of research or license payments received that have not been earned.

For revenue agreements with multiple-element arrangements, such as license and development agreements, we allocate revenue to each non-contingent element based on the relative selling price of each element. When applying the relative selling price method, we determine the selling price for each deliverable using vendor-specific objective evidence or third-party evidence. If neither exists, we use the best estimate of selling price for that deliverable. Revenue allocated is then recognized when the four basic revenue recognition criteria are met for each element.

Payments that are contingent upon the achievement of a substantive milestone are recognized entirely as revenue in the period in which the milestone is achieved. A milestone is defined as an event: (a) that can only be achieved based in whole or in part on either (1) the entity's performance or (2) on the occurrence of a specific outcome resulting from the entity's performance; (b) for which there is substantive uncertainty at the date the arrangement is entered into that the event will be achieved; and (c) that would result in additional payments being due to the entity. A milestone is considered substantive if the consideration earned from the achievement of the milestone meets all of the following criteria: (a) the consideration is commensurate with either (1) the entity's performance to achieve the milestone, or (2) the enhancement of the value of the delivered item(s) as a result of a specific outcome resulting from the entity's performance to achieve the milestone; (b) the consideration relates solely to past performance; and (c) the consideration is reasonable relative to all of the deliverables and payment terms (including other potential milestone consideration) within the arrangement. To the extent that non-substantive milestones are achieved and we have remaining performance obligations, payments in respect of such milestones are deferred and recognized as revenue over the estimated remaining period of performance. If there were no remaining performance obligations, we would recognize the revenue in the period it is earned.

Payments related to options to license our program candidates are considered substantive if, at the inception of the arrangement, we are at risk as to whether the collaboration partner will choose to exercise the option. Factors that we consider in evaluating whether an option is substantive include the overall objective of the arrangement, the benefit the collaborator might obtain from the arrangement without exercising the option, the cost to exercise the option and the likelihood that the option will be exercised. For arrangements under which an option is considered substantive, we do not consider the item underlying the option to be a deliverable at the inception of the arrangement and the associated option fees are not included in allocable arrangement consideration, assuming the option is not priced at a significant and incremental discount. Conversely, for arrangements under which an option is not considered substantive or if an option is priced at a significant and incremental discount, we would consider the item underlying the option to be a deliverable at the inception of the arrangement and a corresponding amount would be included in allocable arrangement consideration.

Revenues related to research collaboration services and grants are recognized as research costs are incurred, and/or the underlying services are performed over the term as specified in the related agreements.

Accrued Research and Development Expenses

As part of the process of preparing financial statements, we are required to estimate and accrue expenses, the largest of which are research and development expenses. This process involves:

- communicating with our applicable personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of actual cost;
- estimating and accruing expenses in our financial statements as of each balance sheet date based on facts and circumstances known to us at the time; and
- periodically confirming the accuracy of our estimates with selected service providers and making adjustments, if necessary.

Examples of estimated research and development expenses that we accrue include:

- fees paid to clinical research organizations in connection with nonclinical studies and clinical studies;
- fees paid to investigative sites in connection with clinical studies;
- fees paid to contract manufacturing organizations in connection with the production of clinical study materials; and
- professional service fees for consulting and related services.

We base our expense accruals related to clinical studies on our estimates of the services received and efforts expended pursuant to contracts with multiple research institutions and clinical research organizations that conduct and manage clinical studies on our behalf. The financial terms of these agreements vary from contract to contract and may result in uneven payment flows. Payments under some of these contracts depend on factors, such as the successful enrollment of patients and the completion of clinical study milestones. Our service providers generally invoice us monthly in arrears for services performed. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If we do not identify costs that we have begun to incur or if we underestimate or overestimate the level of services performed or the costs of these services, our actual expenses could differ from our estimates.

To date, we have not experienced significant changes in our estimates of accrued research and development expenses after a reporting period. However, due to the nature of estimates, we cannot assure you that we will not make changes to our estimates in the future as we become aware of additional information about the status or conduct of our clinical studies and other research activities.

Stock-Based Compensation

Stock-based compensation expense represents the grant date fair value of employee stock option grants recognized over the requisite service period of the awards (usually the vesting period) on a straight-line basis, net of estimated forfeitures.

We account for stock options granted to non-employees using the fair value approach. These options are subject to periodic revaluation to reflect the current fair value at each reporting period until the non-employee completes the performance obligation or the date on which a performance commitment is reached.

We calculate the fair value of stock-based compensation awards using the Black-Scholes option-pricing model. The Black-Scholes option-pricing model requires the use of subjective assumptions,

including stock price volatility, the expected life of stock options, risk free interest rate and the fair value of the underlying common stock on the date of grant. Our key assumptions are:

- ***Expected Stock Price Volatility:*** The expected volatility is based on the historical volatility of the stock of similar entities within our industry over periods commensurate with our expected term assumption.
- ***Expected Term of Options:*** The expected term of options represents the period of time options are expected to be outstanding. The expected term of the options granted is derived using the "simplified" method (that is, estimating the expected term as the mid-point between the vesting date and the end of the contractual term for each option).
- ***Risk-free Interest Rate:*** We base the risk-free interest rate on the interest rate payable on U.S. Treasury securities in effect at the time of grant for a period that is commensurate with the assumed expected option term.
- ***Expected Annual Dividends:*** The estimate for annual dividends is zero because we have not historically paid dividends, and do not expect to pay dividends for the foreseeable future.

We recorded stock-based compensation expense of $6.0 million and $7.7 million for the years ended December 31, 2016 and 2017, respectively. We recorded stock-based compensation expense of $3.8 million and $4.5 million for the six months ended June 30, 2017 and 2018, respectively. As of June 30, 2018, we had unrecognized stock-based compensation cost related to options granted to employees and directors of $15.2 million, net of forfeitures, which is expected to be recognized as expense over approximately 1.8 years.

Historically, the fair value of the common stock underlying our share-based awards was estimated on each grant date by our board of directors. In order to determine the fair value of our common stock underlying option grants, our board of directors considered, among other things, timely valuations of our common stock prepared by an unrelated third-party valuation firm in accordance with the guidance provided by the American Institute of Certified Public Accountants Practice Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. Given the absence of a public trading market for our common stock, our board of directors exercised reasonable judgment and considered a number of objective and subjective factors to determine the best estimate of the fair value of our common stock, including our stage of development; progress of our research and development efforts; the rights, preferences and privileges of our convertible preferred stock relative to those of our common stock; equity market conditions affecting comparable public companies; and the lack of marketability of our common stock.

We have utilized the probability-weighted expected return method, or PWERM, alone or in combination with the option pricing method, or OPM, as a hybrid method, or Hybrid Method, each an accepted valuation method under the AICPA Practice Guide, for determining the fair value of our common stock. The PWERM is a scenario-based analysis that estimates the value per share of common stock based on the probability-weighted present value of expected future equity values for the common stock, under various possible future liquidity event scenarios, in light of the rights and preferences of each class and series of stock, discounted for a lack of marketability. The OPM values each equity class by creating a series of call options on the equity value, with exercise prices based on the liquidation preferences, participation rights and strike prices of derivatives. The Hybrid Method is appropriate for a company expecting a near term liquidity event, but where, due to market or other factors, the likelihood of completing the liquidity event is uncertain. The Hybrid Method considers a company's going concern nature, stage of development and the company's ability to forecast near and long-term future liquidity scenarios. In connection with our preparation for filing a registration statement with the SEC, we evaluated whether or not in retrospect the valuation of our common stock as of the date of each option grant over the previous 12 months was appropriate for accounting purposes.

The dates of our contemporaneous valuations have not always coincided with the dates of our stock option grants. In determining the exercise prices of the stock options, our board of directors considered, among other things, the most recent contemporaneous valuations of our common stock and our assessment of additional objective and subjective factors we believed were relevant as of the grant date. The additional factors considered when determining any changes in fair value between the most recent contemporaneous valuation and the grant dates included our stage of research and development, our operating and financial performance and current business conditions.

After the completion of this offering, the fair market value of each share of underlying common stock will be determined based on the closing price of our common stock as reported by the Nasdaq Global Market on the date of grant.

Based on an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, the intrinsic value of stock options outstanding at December 31, 2017 was $ million, of which $ million and $ million related to stock options that were vested and unvested, respectively, at that date.

JOBS Act Accounting Election

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. Under the JOBS Act, emerging growth companies may delay the adoption of new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards would otherwise apply to private companies.

The Jumpstart Our Business Startups Act of 2012, or the JOBS Act, permits an "emerging growth company" such as us to take advantage of an extended transition time to comply with new or revised accounting standards as applicable to public companies. We are choosing to elect the extended transition period for complying with new or revised accounting standards applicable to public companies. We have elected the extended transition period for complying with new or revised accounting standards pursuant to Section 107(b) of the JOBS Act until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

We will remain an emerging growth company until the earlier to occur of (1) (a) the last day of the fiscal year following the fifth anniversary of the completion of this offering, (b) the last day of the fiscal year in which our annual gross revenue is $1.07 billion or more, or (c) the date on which we are deemed to be a "large accelerated filer," under the rules of the SEC, which means the market value of our equity securities that is held by non-affiliates exceeds $700 million as of the prior June 30th, and (2) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period.

Newly Issued Accounting Pronouncements

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers* (Topic 606), which supersedes the revenue recognition requirements in Accounting Standards Codification (ASC) 605, Revenue Recognition. This ASU is based on the principle that revenue is recognized to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The ASU also requires additional disclosure about the nature, amount, timing and uncertainty of revenue

and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to obtain or fulfill a contract. The ASU's effective date will be for the fiscal year beginning January 1, 2019 using one of two retrospective application methods. The Company is currently assessing the impact of adoption on its consolidated financial statements and developing a plan for transition to the new guidance. The Company is currently at the early stages of analyzing its research collaboration, product development and license agreement with Merck to determine the differences in the accounting treatment under ASU 2014-09 compared to the current accounting treatment. The consideration the Company is eligible to receive under this agreement includes upfront payments, research and development funding, option payments, milestone payments, and royalties. The new revenue recognition standard differs from the current accounting standard in many respects, such as in the accounting for variable consideration and the measurement of progress toward completion of performance obligations. While the Company has not completed an assessment of the impact or selected the method of adoption, the adoption of ASU 2014-09 may have a material effect on its consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases* (ASU 2016-02). ASU 2016-02 is aimed at making leasing activities more transparent and comparable, and requires substantially all leases be recognized by lessees on their balance sheet as a right-of-use asset and corresponding lease liability, including leases currently accounted for as operating leases. ASU 2016-02 is effective for all annual reporting periods beginning after December 15, 2019. Early adoption is permitted. The Company is currently evaluating the impact that the adoption of ASU 2016-02 will have on its financial statements and related disclosures.

In March 2016, the FASB issued ASU No. 2016-09, *Compensation—Stock Compensation* (Topic 718)—*Improvements to Employee Share Based Payment Accounting as part of the FASB simplification initiative*. The new standard provides for changes to accounting for stock compensation including 1) excess tax benefits and tax deficiencies related to share based payment awards will be recognized as income tax expense in the reporting period in which they occur; 2) excess tax benefits will be classified as an operating activity in the statement of cash flows; 3) the option to elect to estimate forfeitures or account for them when they occur; and 4) increase tax withholding requirements threshold to qualify for equity classification. The Company adopted ASU 2016-09 as of January 1, 2018; however, there was no impact on the Company's consolidated financial statements as a result of adopting ASU 2016-09.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows* (Topic 230)— *Restricted Cash*, to clarify the presentation of the change in restricted cash on the statement of cash flows. The new standard clarifies the FASB's position that changes to restricted cash are not reflective of an entity's operating, investing or financing activities, and therefore should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The ASU is effective for fiscal years beginning after December 15, 2018. The Company is currently assessing the impact of this ASU on the presentation of its consolidated statement of cash flows.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation—Stock Compensation (Topic 718): Scope Modification Accounting*. ASU 2017-09 defines which changes to the terms or conditions of a share-based payment award require the Company to apply modification accounting. The Company adopted ASU 2017-09 on January 1, 2018; however, there was no impact on the Company's consolidated financial statements as a result of adopting ASU 2017-09.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation—Stock Compensation (Topic 718): Improvements to Non-Employee Share-Based Payment Accounting* as part of the FASB simplification initiative. The new standard expands the scope of Topic 718, allowing the Company to apply the requirements of Topic 718 to certain non-employee awards to acquire goods and services from non-employees. This ASU will be effective for the Company for fiscal years beginning after December 15, 2019, and interim periods within fiscal years beginning after December 15, 2020, with early adoption permitted. The Company is currently assessing the impact of this ASU on its consolidated financial statements.

BUSINESS

Overview

We are a clinical-stage biopharmaceutical company developing novel therapeutics based on our scientific understanding of key biological pathways underlying cardio-metabolic, liver, oncologic and ophthalmic diseases. These diseases are among the largest unmet medical needs globally and represent leading causes of morbidity and mortality and a significant burden for healthcare systems. Since the commencement of our operations in 2008, we have generated a robust portfolio of seven product candidates, five of which are in clinical testing. Our most advanced product candidate, NGM282, is wholly-owned and will enter Phase 2b development for the treatment of non-alcoholic steatohepatitis, or NASH, in the first quarter of 2019. In an ongoing Phase 2 clinical trial, NGM282 demonstrated the ability to rapidly improve NASH and reverse liver fibrosis at 12 weeks. We have created this portfolio using our research and drug discovery approach that employs unbiased, *in vivo*-based discovery to identify proprietary insights into critical biological processes. We combine this approach with our protein and antibody engineering expertise to find the appropriate modality to enhance each product candidate's therapeutic potential. Our executives, directors and advisors have extensive track records of successfully discovering, developing and delivering to patients first-in-class drugs, which positions us well to maximize the potential of our drug discovery approach.

In 2015, we entered into a five-year research collaboration, product development and license agreement with Merck Sharp & Dohme Corp., or Merck. The collaboration includes an exclusive worldwide license to our growth development factor 15, or GDF15, program. Under the agreement, we also granted Merck options to take exclusive, worldwide licenses for the programs in our research and development pipeline on a program-by-program basis. Merck generally has a one-time right to exercise its option when a program completes a human proof-of-concept trial. The collaboration enables us to develop more product candidates for major indications than we could likely advance on our own, with Merck bearing a majority of the associated cost and risk. We retain an option, when a candidate has advanced to Phase 3 clinical trials, to participate in up to 50% of the economic return from that candidate if it becomes an approved medicine. Overall, the Merck collaboration provides us with robust research and development support, while we retain our research independence and the option to split costs and profits on product candidates Merck elects to advance. We excluded our fibroblast growth factor 19, or FGF19, program, including NGM282, from the agreement and it remains wholly-owned by us.

Our most advanced programs have focused on novel discoveries in hormone pathways that regulate cardio-metabolic processes and liver function, including those driving NASH, type 2 diabetes and obesity. We have identified multiple hormone pathways of interest, the most advanced of which are: FGF19 which plays a critical role in controlling bile acid, lipid and glucose metabolism; fibroblast growth factor receptor 1c-beta-klotho, or FGFR1c/KLB, which regulates insulin sensitivity, blood glucose and liver fat; and GDF15, which drives profound metabolic activity by regulating fuel flux and has been considered a challenging therapeutic target. We believe these hormone pathways work through distinct mechanisms and play an important role in metabolic regulation. We are currently advancing seven proprietary product candidates, as summarized below.

PRODUCT CANDIDATE	MECHANISM OF ACTION (Dosing Frequency)	POTENTIAL INDICATIONS	STAGE OF DEVELOPMENT	WORLDWIDE COMMERCIAL RIGHTS	EXPECTED UPCOMING MILESTONES
NGM282	FGF19 Analog (Once Daily)	NASH	Phase 2	NGM	Ph 2b Initiation: 1Q 2019; Interim Ph 2 Data: 2H 2019
NGM313	FGFR1c / KLB Agonistic Antibody (Once Monthly)	NASH, Type 2 Diabetes	Phase 1b	Merck Option to License	Interim Ph 1b Data: 4Q 2018
NGM386	GDF15 Analog (Once Daily)	Obesity	Phase 1	Merck License	Ph 2a Initiation: 2019
NGM395	GDF15 Analog (Long Acting)	Obesity	Preclinical	Merck License	Ph 1 Initiation: 1H 2019
NGM120	GFRAL Antagonistic Antibody (Long Acting)	Cancer Anorexia / Cachexia Syndrome (CACS)	Phase 1	Merck Option to License	Ph 1b Initiation: 1H 2019
NGM217	Undisclosed (Long Acting)	Diabetes	Phase 1	Merck Option to License	Ph 1b/2a Initiation: 2020
NGM621	Undisclosed (Long Acting)	Dry Age-Related Macular Degeneration	Preclinical	Merck Option to License	Ph 1 Initiation: 2H 2019

We are currently focused on the following programs:

- NGM282 is an engineered variant of the human hormone known as FGF19, which we are developing for the treatment of NASH. FGF19 is a highly specific and potent regulator of liver fat metabolism and bile acid synthesis that we believe is responsible for some of the beneficial effects of gastric bypass surgery on NASH. Preliminary results from Phase 2 clinical trials have provided clinical proof of concept for a once-daily injection of NGM282 by demonstrating statistically significant reductions in liver fat, liver transaminases and biomarkers of fibrosis, which has translated into improvements in liver histology and fibrosis at 12 weeks. We expect interim data in the second half of 2019 from our ongoing placebo-controlled Phase 2 clinical trial cohort assessing the histological effects of NGM282 after 24 weeks of treatment. We plan to commence testing of NGM282 in a Phase 2b dose range-finding clinical trial for the treatment of NASH patients with F2 and F3 liver fibrosis in the first quarter of 2019. We expect to complete our Phase 2b clinical trial of NGM282 in 2020. We excluded our FGF19 program, including NGM282, from our Merck collaboration, and it remains wholly-owned by us.
- NGM313 is an agonistic antibody binding KLB and has the potential to be a best-in-class insulin sensitizer for the treatment of type 2 diabetes and NASH. NGM313 works by selectively

activating the FGFR1c/KLB co-receptor complex, which regulates energy expenditure and glucose uptake in fat cells and other tissues. We are developing NGM313 as a once-monthly injection to treat type 2 diabetes and NASH. Preliminary data from a Phase 1b early proof-of-concept clinical trial in obese insulin resistant subjects with nonalcoholic fatty liver disease, or NAFLD demonstrated that a single dose of NGM313 resulted in a statistically significant reduction in liver fat content and improvements in multiple metabolic parameters. We expect to receive interim Phase 1b data in the fourth quarter of 2018. Merck has a one-time option to license NGM313 upon our completion of a proof-of-concept study in humans.

- NGM386 and NGM395 are engineered variants of the human hormone known as GDF15, which we are developing with Merck for the treatment of obesity. We discovered that metabolic activity of GDF15 is mediated by glial cell-derived neurotrophic factor receptor alpha-like, or GFRAL, which is located in a region of the brain stem outside the blood-brain barrier. NGM386, a once-daily injection, and NGM395, a once-weekly or less frequent injection, are designed to stimulate a pathway that modulates the autonomic nervous system and, possibly, the neuroendocrine axis to modify body weight and fat levels in the body. Merck licensed this GDF15 agonist program and is currently conducting a Phase 1 clinical trial of NGM386 in overweight or obese but otherwise healthy adults. We expect Merck to initiate Phase 2a clinical trials of NGM386 in obese adults and Phase 1 clinical trials of NGM395 in overweight or obese but otherwise healthy adults in 2019.
- NGM120 is an antagonistic antibody binding glial cell-derived neurotrophic factor receptor alpha-like, or GFRAL, that is designed to inhibit the effects of elevated GDF15 levels on cancer anorexia/cachexia syndrome, or CACS, and possibly, cancer. NGM120 works by selectively inhibiting the interaction between GDF15 and its cognate receptor, GFRAL, through which the autonomic nervous system and, possibly, the neuroendocrine axis influence the body's fuel flux to propel the cachectic state, and, possibly, the cancer itself, in cancer patients that have high serum levels of GDF15. We are currently testing NGM120 in healthy volunteers in a Phase 1 clinical trial to assess its safety, tolerability and pharmacokinetic profile. We expect to initiate a Phase 1b clinical trial of NGM120 in cancer patients with CACS in the first half of 2019. Merck has a one-time option to license NGM120 upon our completion of a proof-of-concept study in humans.
- NGM217 is an antibody binding an undisclosed target, designed to restore pancreatic islet function and increase insulin production in patients with diabetes. NGM217 is in a Phase 1 clinical trial in adults with diabetes, where we are assessing its ability to increase levels of C-peptide, a biomarker of insulin production. Merck has a one-time option to license NGM217 upon our completion of a proof-of-concept study in humans.
- NGM621 is an antibody binding an undisclosed target, designed to decrease levels of a protein implicated in the dry form of age-related macular degeneration, or dry AMD. NGM621 is in IND-enabling studies, and we expect to begin a Phase 1 safety, tolerability and pharmacokinetics clinical trial in patients with geographic atrophy, or GA, an advanced form of dry AMD, in the second half of 2019. Merck has a one-time option to license NGM621 upon our completion of a proof-of-concept study in humans.

Using our drug discovery approach, we have identified and are actively investigating over ten additional biological pathways with potential to intervene in disease. For these pathways, we are further identifying mechanistic insights and their relevance to human biology, and generating biologic drug candidates that appropriately modulate the signals we have identified. These programs are in various stages of development, ranging from functional validation to lead candidate generation. Discovery activity in selected therapeutic areas beyond cardio-metabolic, liver, oncologic and ophthalmic diseases is ongoing and in various stages of research.

Our management, scientists, board members and advisors have long track records of identifying multiple, class-defining drugs with meaningful clinical and commercial impact. Our scientific values and guiding principles have grown out of our team's experience and involvement at companies that have built prolific drug discovery and development platforms, particularly Amgen Inc., Genentech, Inc. and Tularik Inc. We believe that this collective experience uniquely positions our team to execute on our strategy.

Our Strategy

Our strategy is to leverage our biology-centric drug discovery approach to uncover novel mechanisms of action and generate proprietary insights that will enable us to move rapidly into proof-of-concept studies and deliver to patients first-in-class medicines. Key elements of our strategy are:

- ***Establish NGM282, Our Wholly-Owned Compound, as the Leading Treatment for NASH Patients with Moderate to Advanced Fibrosis:*** In Phase 2 clinical trials in NASH, patients taking NGM282 have experienced rapid and robust reductions in liver fat, liver transaminases, hepatocellular ballooning and fibrosis. These results suggest that NGM282 has the potential to resolve disease and reverse fibrosis in NASH patients with moderate to advanced fibrosis. We plan to initiate a Phase 2b clinical trial of NGM282 in NASH patients with fibrosis stage F2 and F3 in the first quarter of 2019, which will inform dose selection for a Phase 3 clinical trial to support a filing for initial marketing approval. As part of our life cycle management strategy, we intend to also develop a version of NGM282 with an extended half-life, or exposure duration in the blood, which will enable less frequent dosing.
- ***Leverage Our Collaboration with Merck to Advance Our Pipeline:*** Our collaboration with Merck provides us with financial resources and access to industry-leading late-stage clinical development and commercialization capabilities, which we believe affords us substantial freedom to pursue and achieve our vision. We intend to leverage Merck's financial support and translational expertise to accelerate and broaden our development efforts for our programs beyond NGM282. Our option to elect a cost and profit share for collaboration products preserves our substantial economic participation in such programs.
- ***Grow Our Pipeline and Extend Our Therapeutic Areas of Focus:*** Our initial research focus is on the biology underlying cardio-metabolic, liver, oncologic and ophthalmic diseases. Our collaboration with Merck creates an incentive for us to develop multiple candidates through human proof-of-concept studies, but does not limit the therapeutic areas that we can explore. We are working to establish human proof of concept for NGM120 in cancer patients and NGM621 for dry AMD, and plan to continue growing our pipeline of product candidates at our historical rate, with the goal of identifying high-impact therapeutics that are first-in-class.
- ***Build Capabilities to Deliver Medicines to Patients in Areas of High Unmet Medical Need:*** We have worldwide rights to our lead product candidate, NGM282. If approved, we intend to bring NGM282 to market by building our own specialty salesforce in the United States targeting hepatologists and may seek to expand our reach by leveraging partners' commercial capabilities. We believe a targeted salesforce would have the ability to deliver NGM282 to the majority of the initial target population of NASH patients with moderate to advanced fibrosis. For our other programs, our collaboration with Merck provides us the option to participate in commercializing in the United States.
- ***Strengthen Our Position as a Leading Drug Discovery and Development Company:*** We aspire to operate one of the most productive research and development engines in the biopharmaceutical industry. In the last decade, our team of experienced scientists and drug developers has designated seven molecules for development, five of which are in clinical

development. We intend to continue growing our pipeline of experimental medicines and build on our proficiency in discovery research by continuing to expand our capabilities in protein and antibody engineering, pharmacology, translational medicine and preclinical and clinical development.

Our Approach to Drug Discovery and Development

We pursue drug discovery and development through a multi-step process geared towards translating powerful human biology into first-in-class medicines. Our founding team designed our approach based on many decades of experience in successful drug development at other companies, including Amgen, Genentech and Tularik. Our process pairs a research approach that generates novel insights into pathways demonstrating powerful biological effect with the expertise in protein and antibody engineering to transform those insights into product candidates. This process seeks to address the challenges in drug discovery in diseases that involve complex, integrated biological pathways.

Identifying Pathways of Interest

We identify target genes or pathways of interest by utilizing three approaches:

- an unbiased, *in vivo* functional evaluation system formed the foundation of our discovery efforts in metabolism and enabled us to identify and characterize novel human hormones that demonstrate profound biological effects, including FGF19 and GDF15, for which we have advanced development candidates;
- analysis of human genetics data to identify genetic markers, such as single nucleotide polymorphisms, or SNPs, that correlate with a particular phenotype associated with disease; and
- gene expression profiling to identify genes that are regulated by certain conditions or disease states and that may contribute to the associated pathology.

We then characterize and confirm the effects of modulating the biological activity of these potential targets using *in vivo* models designed to mimic the disease of interest. We interrogate the biological activity of candidate targets using *in vivo* models because *in vitro* experiments, which take place outside a living organism, are not capable of adequately reflecting complex biological processes and interactions that are regulated by multi-organ systems. Historically, *in vivo* screening at a scale and speed for drug discovery has not been practical as it has largely been dependent on generating purified protein for functional testing. We use recombinant adeno-associated virus, or rAAV, vectors, a proven research tool that can introduce the gene of interest directly into disease models to enable the biological function of the resultant protein to be assessed *in vivo*. With this rAAV technology, we initially developed an unbiased, *in vivo* functional evaluation system that formed the foundation of our discovery efforts in cardio-metabolic disease and enabled us to identify novel pathways that demonstrate profound metabolic effects. In addition, we utilize *in vivo* models with loss of function mutations or knockouts to understand the function of certain human genes as they relate to the disease of interest. By employing these approaches in animal models of human diseases, we can elucidate the biology of potential human drug targets in a relevant *in vivo* setting and evaluate their impact on the manifestation and progression of disease.

Translation of Pathway Biology to Product Candidates

Once a strong indication of biological activity is generated for a protein of interest, we employ a differentiated process aimed at quickly identifying a lead candidate to enable us to rapidly advance to,

and evaluate, proof of concept in humans. We probe the mechanism of action, signaling pathways and the relationship between the protein structure and function to help inform how to translate the biological activity into a potential product candidate. Through these activities we have been able to identify novel interaction partners, their expression patterns and their signaling activities, which help elucidate biological mechanisms and inform selection of a lead candidate. We leverage our expertise in protein and antibody engineering to translate biological signals into differentiated product candidates. We have an unbiased antibody generation technology, along with an armamentarium of therapeutic protein and antibody engineering capabilities, including bispecific antibodies, bifunctional antibody fusions and methods for extending the half-lives of native proteins. This range of potential modalities not only allows us to generate a portfolio of product candidates from which to select a lead, but also provides important tools to define the biological activity of the candidates.

After we have identified a lead candidate in a program, we design our early clinical trials to provide proof of biological activity, in addition to assessing safety and tolerability, to determine whether the activity we have observed in animal models can be translated into human subjects. We believe our deep understanding of the fundamental biological mechanisms observed for our chosen development candidates and the specific relationship between structure and pharmacological function distinguishes our drug discovery approach from many others applied in our industry today.

The cornerstone of our research and development approach is the experienced and talented team of scientists and drug developers who built and run it. A common theme in our team's expertise is the ability to translate biological signals in animal models into drugs with human activity. Members of our team played significant roles at prior companies in discovering and developing multiple approved drugs, including recombinant human insulin, human growth hormone, tissue plasminogen activator and interferon alpha and gamma, as well as metreleptin and evolocumab (Repatha). Our team seamlessly integrates discovery biology, protein and antibody engineering, preclinical development, early clinical development and manufacturing for each program. Our scientific advisory board further strengthens our experience base and includes key contributors to the discovery of the statin class of drugs, as well as thought leaders in new areas complementary to our early-stage research efforts.

Our Initial Focus on Cardio-Metabolic and Liver Disease

Cardio-metabolic and liver diseases, including NASH, diabetes and obesity, are among the largest unmet medical needs globally, and represent a leading cause of morbidity and mortality, a significant burden for healthcare systems and an area of relative underinvestment by the pharmaceutical industry. Metabolic syndrome is exhibited by 34% of adults in the United States and is believed to be at the center of this health epidemic. Metabolic syndrome comprises a constellation of co-morbid conditions, including type 2 diabetes, obesity, high blood pressure, poorly regulated lipids and non-alcoholic fatty liver disease, or NAFLD, a precursor condition to NASH. Despite a wave of public health campaigns to promote better diet and exercise habits and a range of treatment options available for many of these cardio-metabolic diseases, morbidity and mortality rates remain high and more effective therapeutics are needed.

Cardio-metabolic and liver diseases represent areas of both rapidly growing unmet medical need and underinvestment, driven in part by the biological complexity of the diseases and the substantial costs necessary to develop new therapeutics. Leveraging our differentiated drug discovery approach, we have spent the last decade discovering and developing a portfolio of clinical-stage drug candidates that target various forms of cardio-metabolic disease including NASH, type 2 diabetes and obesity. Each of these drug candidates stem from novel insights we have made in understanding hormone pathways that regulate cardio-metabolic processes. NGM282 is our lead product candidate in development for treating NASH, a cardio-metabolic liver disease. As explained below, the clinically validated, dual mechanism of action of NGM282 supports its therapeutic potential in NASH, an

indication with a high prevalence and for which there are no approved treatments. Our investment in cardio-metabolic diseases was further expanded in 2015 through our collaboration with Merck, which provided resources to advance multiple programs, in addition to our wholly-owned NGM282 program. The five most advanced clinical candidates currently subject to our Merck collaboration—NGM313, NGM386, NGM120, NGM217 and NGM395—are notable because their preclinical profiles suggest the potential to broadly impact the drivers of various diseases with an underlying metabolic dysregulation. These programs are in human clinical trials or preparing to enter human clinical trials.

Other Focus Areas

Beyond cardio-metabolic and liver diseases, we are also pursuing treatments for oncologic and ophthalmic diseases, which are also major disease categories that are growing in incidence and lack adequate treatments. NGM120 is our first product in oncology and NGM621 is our first product candidate in ophthalmic disease. All of our programs embody our focus on delivering transformative therapeutics to patients by applying our proprietary insights into powerful biology underlying major diseases.

Our Programs

NGM282: A Rapid and Potent Approach to Treating NASH

NGM282, an engineered version of human hormone FGF19 that is administered through a once daily subcutaneous injection, has demonstrated the ability to rapidly improve NASH and reverse liver fibrosis in clinical and preclinical studies. We believe the combination of breadth, magnitude and speed of effect demonstrated by NGM282 in these studies surpasses what other agents currently in clinical development for NASH have demonstrated to date. We base this belief on a review of publicly available data from completed clinical trials listed in the U.S. government-sponsored ClinicalTrials.gov database with relevant endpoints assessed by liver biopsy.

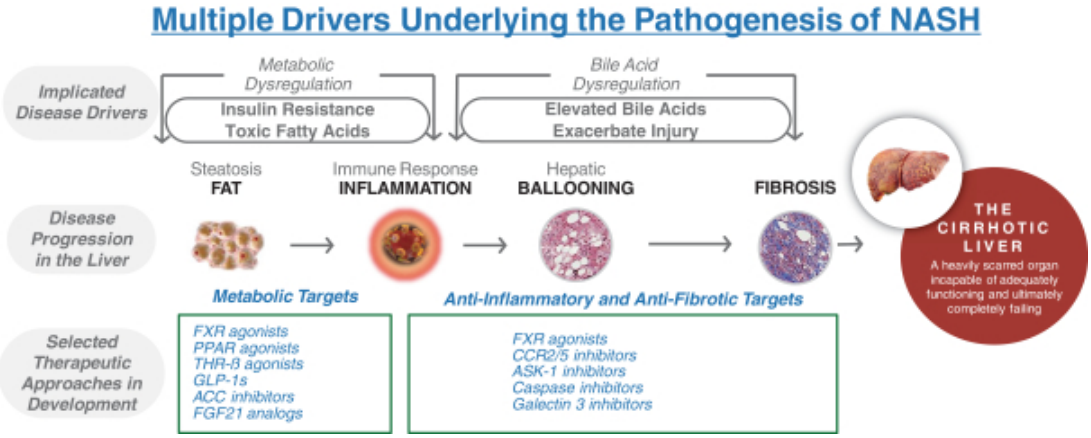
If ultimately approved, we believe NGM282 could provide a needed medicine for physicians to treat NASH patients with moderate to advanced fibrosis. We have tested NGM282 in over 400 subjects, including more than 150 NASH patients, and we expect to initiate a Phase 2b clinical trial in NASH patients in the first quarter of 2019. NGM282 is wholly-owned, and it is not subject to our collaboration with Merck.

NASH: A Progressive Metabolic and Fibrotic Disease of the Liver that Affects Millions

NASH is a life threatening form of liver disease. It results from the progression of NAFLD, which is a common co-morbidity of the metabolic syndrome and obesity. NAFLD is characterized by abnormal amounts of fat in the liver, a condition known as steatosis, and is often associated with insulin resistance. This abnormal fat in the liver contributes to the progression by certain NAFLD patients to NASH by developing a necroinflammatory state in the liver that ultimately drives scarring, also known as fibrosis, and, for many, progresses to liver failure, also known as cirrhosis.

The estimated global prevalence of NAFLD and NASH has risen rapidly in parallel with the dramatic rise in population levels of obesity and diabetes. NAFLD now represents the most common cause of liver disease in the Western world. In the United States alone, the prevalence of NASH was estimated to total 16.5 million cases and is projected to reach 27 million cases by 2030, with similar trends occurring globally. By 2020, NASH is expected to supplant hepatitis C as the leading cause for liver transplantation, and liver-related deaths in the NAFLD population are expected to increase by more than 150% in the next 15 years. The annual economic burden associated with NAFLD and NASH in the United States was estimated to have been over $100 billion in 2016.

Although the mechanism underlying the development and progression from simple steatosis to NASH and cirrhosis is poorly understood, insulin resistance and inflammatory mediators, including lipotoxicity, cytokines and oxidative stress, are believed to promote the development of NASH and its extrahepatic complications. Excess lipotoxic, or fat, metabolites in the liver are believed to provide the primary insult in the pathogenesis of NASH, and several treatments are in development targeting mechanisms to reduce these disease drivers. Other treatments in development aim to reduce the inflammatory and fibrotic damage created by this metabolic dysregulation. Evidence also supports a role for bile acids in the pathogenesis of liver inflammation and fibrosis. Accumulation of bile acids, in particular, more toxic hydrophobic bile acids, within hepatocytes can cause mitochondrial dysfunction, endoplasmic reticulum stress and immune cell infiltration that can ultimately lead to inflammation, cell death and liver injury.



Most patients with NASH are diagnosed in their forties or fifties, however, NASH develops across all ages, including in children, which is thought to be linked to an increase in childhood obesity. Most NASH patients are asymptomatic, although some may present with fatigue, malaise and vague right-upper abdominal discomfort. Patients are more likely to be initially identified by elevated liver aminotransferases on routine lab tests or hepatic steatosis detected incidentally on abdominal imaging. While non-invasive diagnostic tools are under development, a definitive diagnosis of NASH is currently only achievable through liver biopsy to assess the components of the NAFLD activity score, or NAS.

The histologic criteria for the diagnosis of adult NASH include steatosis, lobular inflammation and hepatocellular ballooning. Portal and periportal fibrosis followed by bridging fibrosis and cirrhosis are seen in patients as NASH progresses. Physicians assess the severity of NASH by liver biopsy using two different scoring systems, the NAS and the fibrosis stage (F0 to F4). The table below describes the scoring criteria of the two systems:

NAFLD Activity Score System

Component	Score	Thresholds
Steatosis (% of microscopic field showing steatosis)	0	<5%
	1	5-33%
	2	>34%-66%
	3	>66%
Lobular Inflammation (Number of immune cell foci per 20x optical field in microscope)	0	None
	1	<2 foci
	2	2-4 foci
	3	>4 foci
Hepatocellular Ballooning (amount of ballooning cells in microscopic field)	0	None
	1	Few cells
	2	Many cells
Total NAS Score = steatosis score + lobular inflammation score + hepatocellular ballooning score		

Fibrosis Score

Fibrosis Stage	Description
F0	Absence of fibrosis
F1	Perisinusoidal or periportal
F2	Perisinusoidal and periportal
F3	Bridging fibrosis
F4	Cirrhosis

The NAS is a validated score of liver histology that is used to grade disease activity in patients with NAFLD and NASH. The NAS is the sum of the liver biopsy's individual scores for steatosis (0–3), lobular inflammation (0–3) and hepatocellular ballooning (0–2), with fibrosis (F0–F4) scored separately. Advanced liver fibrosis is generally considered fibrosis stage F3 and F4, which may ultimately lead to end-stage liver disease, liver cancer, liver transplant and death.

FDA Preliminary Recommendations on NASH Drug Development and Endpoints

There are no FDA-approved therapeutics for NASH. The FDA has provided preliminary recommendations to the industry regarding acceptable development pathways for investigational NASH agents as follows:

- must be tested in NASH patients typically characterized as having a NAS of four or greater and at least one point in each component, with F2, F3 or F4 fibrosis;
- for an accelerated approval path (Subpart H (drugs)/Subpart E (biologics)), a surrogate endpoint that is "reasonably likely to predict clinical benefit" is acceptable. A subsequent post

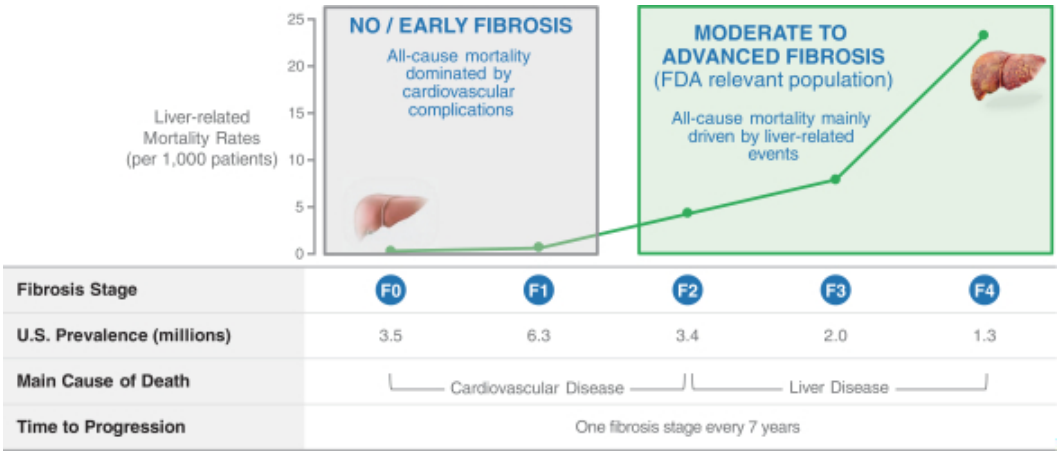
marketing confirmatory outcomes study is then required to be conducted to maintain licensure; and

- for a Subpart H/E approval, two biopsy-based surrogate endpoints are endorsed by the FDA, defined as the proportion of patients that achieve:
  - resolution of NASH, defined as a lobular inflammation score = 0 or 1 and a hepatocellular ballooning score = 0, with no worsening of fibrosis; or
  - [3]1 stage improvement in fibrosis with no worsening of NASH.

We believe many agents in development for NASH will opt for a Subpart H/E pathway and rely on the surrogate endpoints for initial approval. As detailed further below, fibrosis stage is currently the only measurement that is correlated to liver outcomes and therefore, the potential for many agents that will rely only on the resolution of NASH surrogate endpoint to demonstrate clinical benefit will remain uncertain until a confirmatory outcomes study is successfully completed.

Stage of Fibrosis Predictive of Outcomes for NASH Patients

The presence of fibrosis is the only factor that is highly predictive in identifying those patients who will progress to cirrhosis. The natural history of NASH is variable from patient to patient and, while the NAS is a valuable tool for diagnosing the disease, it does not appear to be predictive of disease progression. Of the estimated 64 million patients in the United States with NAFLD, approximately 10%–20% will progress to NASH over time. Of these NASH patients, approximately 10%–15% will progress to cirrhosis by advancing one fibrosis stage every seven years. The mortality rate of NASH patients with fibrosis has been estimated at 1.5%–3.5% per year, largely due to cardiovascular disease, followed by liver-related causes. However, patients with F2 or greater fibrosis stage have a greater chance of liver-related mortality than cardiovascular-related mortality, and each stage of worsening of fibrosis correlates to an exponential increase in liver-related mortality rates. Patients with F3 fibrosis and F4 fibrosis have an approximately 17 times greater risk and 42 times greater risk, respectively, of liver-related mortality than those NASH patients without fibrosis. Therefore, it is expected that treatments that can drive the regression of fibrosis are more likely to have a meaningful impact on clinical outcomes for NASH patients with F2 to F4 fibrosis.



Current Treatments

Currently, no agents have been approved for the treatment of NASH. Weight loss through diet and lifestyle management is currently considered the first-line treatment strategy for NASH and is associated with improvement in liver histology and a reduction in cardiovascular and metabolic complications. However, fewer than 10% of patients are successful in achieving or maintaining at least a 10% total body weight loss that is sufficient to improve fibrosis and, therefore, require other interventions. In cases of morbid obesity, gastric bypass surgery has been successful in resolving NASH in a majority of patients, however, the effect on fibrosis improvement was less substantial and the risk of complications and expense of the surgery limit more widespread use.

In the absence of approved products, some physicians utilize agents approved for other indications, including Vitamin E and pioglitazone; however, the evidence of their effect on NASH is modest and/or they have safety issues that limit acceptance. Given the increasing disease burden and lack of approved treatment options, the development of novel pharmacologic therapies to treat NASH is critical.

Treatments in Development

While there are many agents in clinical development for NASH, the landscape can be subdivided into a few mechanistic classes based on the putative disease drivers they target. Most treatment approaches for NASH have focused on the prevention or reversal of liver injury either by predominantly treating the metabolic dysregulation of the disease or through directly targeting inflammatory or fibrogenic pathways. NASH is a chronic, slowly progressing disease and, currently, many believe that slowing the progression or reversing disease requires treatment periods of at least 12 months. To attempt to overcome modest individual agent activity, combination therapy is being pursued by some NASH drug developers, on the theory that the complex underlying pathophysiology of NASH will require targeting multiple mechanisms to achieve a sufficient disease-modifying effect to be clinically relevant.

Drug Candidates Pursuing a Metabolic Approach to Treating NASH

Certain NASH drug development candidates are focused on the metabolic components of the disease, such as insulin resistance and lipotoxicity, that are associated with the inception and early stages of the disease pathology. The rationale for these treatment candidates is based on an expectation that the improvement of the underlying liver insult of metabolic dysregulation will allow the liver to recover over the long-term, which would potentially allow the liver to repair itself and eventually improve fibrosis. Although clinical data for some compounds in this mechanistic class show a beneficial effect on steatosis and an improvement in the NAS, the effect on fibrosis is likely to be highly dependent on the compound being tested. Any of these metabolic-focused compounds that are ultimately approved may be appropriate to halt the progression of disease in earlier-stage NASH patients or used in combination with other agents. Considering the correlation of liver failure outcomes with fibrosis stage, we believe the NASH patients with moderate to advanced fibrosis (F2 to F4) will require a more potent and fast-acting agent to prevent the progression to end-stage liver disease.

Drug Candidates Pursuing an Anti-Inflammatory and/or Anti-Fibrotic Approach to Treating NASH

Candidates targeting various mechanisms with possible anti-inflammatory and anti-fibrotic effects are also in clinical testing for NASH. These classes of compounds have shown mixed results in meaningfully improving the fibrosis score of patients. Where fibrosis improvements have been shown, results have either been transient or not accompanied by significant improvements in other histological measures of the disease. These classes of compounds have also shown limited ability to improve NASH.

We believe the minimal efficacy on fibrosis improvement and lack of activity on resolving NASH that has been observed to date with anti-inflammatory and anti-fibrotic agents may reflect the difficulty in treating the disease without removing the underlying insult of lipotoxicity, or the challenge of impinging on the complex process of hepatocellular death and fibrosis from collagen deposition by intervention through a single pathway.

Drug Candidates with Multiple Mechanisms

To date, drug candidates with multiple mechanisms of activity have shown the most promising effect on NASH. The FXR agonist, obeticholic acid, or OCA, demonstrated improvements in the NAS and fibrosis but not resolution of NASH as defined by the Phase 2 study protocol. FXR agonists are known to regulate hundreds of genes, and one of the factors upregulated is FGF19. We believe FGF19 is the primary mediator of the activity of FXR agonists in NASH. FXR agonists are limited, however, in the magnitude of FGF19 levels they can achieve by the boundaries of normal physiology. We believe this limitation to sub-pharmacological levels of FGF19 will limit the ability of FXR agonists to produce a meaningful effect in NASH, in the same way that insulin secretagogues have mild activity compared to insulin itself in treating diabetes. Additionally, treatment with OCA has been associated with pruritus, or whole body itching. There are multiple FXR agonists in preclinical or clinical development seeking to improve on the properties of OCA; however, we believe their activity on NASH will be limited by their inability to sufficiently elevate FGF19 levels over a sustained period of time.

To our knowledge, we are the only program in clinical development for NASH directly activating the native FGF19 pathway to drive both a regression of fibrosis and resolution of NASH.

NGM282: A rapid and potent approach to treating NASH

NGM282, an engineered version of human hormone FGF19 that is administered through a once daily subcutaneous injection, has demonstrated the ability to rapidly improve NASH and reverse liver fibrosis in clinical and preclinical studies. We believe the combination of breadth, magnitude and speed of effect demonstrated by NGM282 in these studies surpasses what other agents currently in clinical development for NASH have demonstrated to date. We base this belief on a review of publicly available data from completed clinical trials listed in the U.S. government-sponsored ClinicalTrials.gov database with relevant endpoints assessed by liver biopsy.

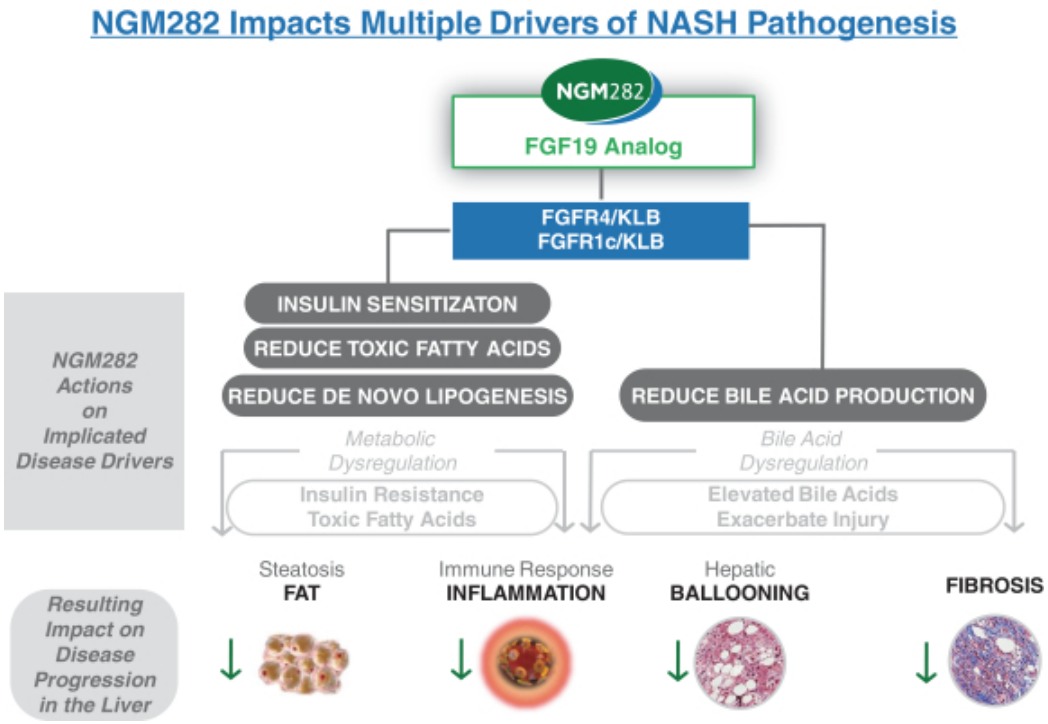
If ultimately approved, we believe NGM282 could provide a needed medicine for physicians to treat NASH patients with moderate to advanced fibrosis. We have tested NGM282 in over 400 subjects, including more than 150 NASH patients, and we expect to initiate a Phase 2b clinical trial in NASH patients in the first quarter of 2019. We obtained Fast Track designation for NGM282 for the treatment of NASH and PBC in adults. See “Government Regulation and Product Approval—Accelerated Approval Requirements.” NGM282 is wholly-owned, and it is not subject to our collaboration with Merck.

In a recent study, gastric bypass surgery has led to a resolution of NASH in approximately 80% of patients studied. We initially identified FGF19 using our rodent gastric bypass surgery model that was designed to discover hormones that may drive the beneficial metabolic effects observed following this type of surgery. We also demonstrated that serum levels of FGF19 are significantly increased in humans after gastric bypass surgery. FGF19 acts as an endocrine hormone to regulate systemic carbohydrate and energy homeostasis, similar to insulin, and also inhibit the production of bile acids in the liver. Systemic FGF19 levels are decreased in patients with NASH, type 2 diabetes or metabolic syndrome, and are normalized after gastric bypass surgery in diabetic human subjects.

The spectrum of activities ascribed to FGF19 appear to be mediated primarily through two different receptor complexes: FGFR4/KLB and FGFR1c/KLB. FGFR4/KLB receptor complexes are

found primarily in the liver and FGFR1c/KLB receptor complexes are found primarily in adipose tissue and the central nervous system. When activated, FGFR4/KLB inhibits the expression of the cholesterol 7alpha-hydroxylase 1, or CYP7A1, gene, which modulates bile acid production through the classical pathway in the liver. There is increasing evidence supporting the role of bile acids as a pathophysiological driver of NASH. Individuals with NASH are reported to have elevated hepatic and circulating concentrations of bile acids, as well as increased concentrations of fecal and urine bile acids. As NASH patients progress to F2 and F3 fibrosis stages, serum levels of bile acids double as compared to healthy volunteers. Furthermore, serum levels of FGF19 are increasingly depressed as fibrosis levels increase in NASH patients as compared to healthy volunteers. A combination of activities from FGFR4/KLB and FGFR1c/KLB are believed to promote multiple beneficial metabolic effects in the liver and systemically, including improved insulin sensitization, a reduction in *de novo* lipogenesis and an increase in fatty acid oxidation.

We designed NGM282 as an analog of human FGF19 to improve the drug-like properties of the protein, remove a tumorigenic signal observed in rodents and retain the beneficial properties of triggering the FGFR4/KLB and FGFR1c/KLB pathways. We believe this tandem receptor-complex activation enables an improvement in the metabolic function of the liver and reduction in bile acid synthesis, which, in turn, enables NGM282 to have a more rapid and direct impact on fibrosis as compared to other agents that only address the metabolic dysfunction of NASH, as illustrated in the figure below.



Our Extensive Clinical Experience with NGM282

Our clinical development program for NGM282 was designed to first assess safety and tolerability of the agent and then test for activity in humans in a variety of disease settings we believed may benefit from the signaling activity of the FGF19 pathway. Each of these trials has provided insights into the agent's activity in humans and informed our development plans for NASH. A consistent profile of activity and tolerability has emerged for the compound across these studies.

After a Phase 1 clinical trial to assess safety and tolerability, we conducted a Phase 2 clinical trial in type 2 diabetes patients to assess the impact of NGM282 on insulin resistance and blood glucose levels. Although they were not histologically confirmed for NASH, the characteristics of many of the patients enrolled in this study are consistent with a population of presumptive NASH patients as they demonstrated many of the hallmarks of NASH, including elevated levels of the liver transaminases known as alanine transaminase, or ALT, and aspartate transaminase, or AST. This trial validated the metabolic pathways of the drug by demonstrating improvements in many metabolic parameters across the patient population, but did not result in significant blood glucose lowering after 28 days of treatment. A consistent improvement in ALT and AST was observed for patients on treatment with NGM282, which suggested the agent may be having a beneficial effect on liver health and, therefore, have application in the treatment of NASH.

We have also explored the utility of NGM282-mediated bile acid synthesis inhibition in two cholestatic diseases, primary biliary cholangitis, or PBC, and primary sclerosing cholangitits, or PSC, but have decided not to pursue further development of NGM282 in these diseases at this time. Although we do not currently intend to pursue NGM282 for the treatment of PBC or PSC, we previously obtained orphan drug designations for NGM282 for the treatment of PBC in adults in the United States and PBC and PSC in adults in the European Union. See “Government Regulation and Product Approval—Orphan Drug Designation.” Both of these conditions are believed to have a strong bile acid component underlying the disease. NGM282 achieved a significant reduction in alkaline phosphatase, or ALP, an FDA-validated biomarker of disease in PBC, however, we determined the once-daily injectable nature of the product and competitive landscape compared to other development paths for the drug was not optimal. Similarly, in PSC, NGM282 treatment resulted in sustained reductions in a biomarker of fibrogenesis (PRO-C3), although there was no benefit in the primary endpoint of the trial, ALP. The FDA has not provided guidance on a development path for PSC that does not involve ALP and, therefore, we have determined not to move forward in this indication until a clear path is defined. Notably, PSC patients have a normal liver fat content level and the indication of fibrosis improvement in this population supports a role for the activity of a bile acid inhibitor, such as NGM282, as an anti-fibrotic in the liver.

A consistent tolerability observation across each trial has been dose-dependent gastrointestinal, or GI, adverse events that manifest in both the upper and lower GI tract. We conducted a Phase 1b trial in patients with chronic constipation and determined that NGM282 has a pro-kinetic effect on the GI tract, which means the increase in stool frequency is caused by greater GI motility and is not related to elevated fecal fat or elevated bile acid content. These results have helped inform mitigation protocols to help patients lessen these GI side effects.

NGM282 Phase 2 Trial in NASH Patients

Our Phase 2 clinical trial in patients with histologically-confirmed NASH was comprised of an initial double-blind placebo-controlled cohort (cohort 1), followed by a series of adaptive, open-label, single-blind cohorts (cohorts 2 and 3). We are also currently enrolling an additional expansion cohort (cohort 4) under this study to test NGM282 in a double blind, placebo-controlled setting with liver biopsies at baseline and following 24 weeks of treatment. Cohort 1 was designed to measure liver fat content by magnetic resonance imaging proton density fat fraction, or MRI-PDFF, and serum biomarker data at 12 weeks. This portion of the study generated distinct signals of therapeutic benefit and appropriate tolerability characteristics, which subsequently informed the adaptive cohorts 2 and 3. The open-label, single-blind cohorts (cohorts 2 and 3) were designed to explore additional dose levels of NGM282, as well as confirm the impact of NGM282 on liver histology, as defined by improvements in fibrosis and NAS. Additionally, the protocol was amended to study statin use for those patients that experienced an low density lipoprotein, or LDL, cholesterol increase during the first two weeks of NGM282 treatment, as further described below.

Components of the NGM282 Phase 2 Clinical Trial in NASH

Cohort	Doses (# of Patients)	Duration	Key Endpoints	Status
1	Placebo (27) NGM282 3 mg (27) NGM282 6 mg (28)	12W	• MRI-PDFF • ALT/AST • Exploratory fibrosis markers	*Completed;* *The Lancet 2018 Publication*
2	NGM282 0.3 mg (23) NGM282 1 mg (21) NGM282 3 mg (22)	12W	• Non-invasive measures • Histology (3 mg) • Lipid mitigation	*Completed;* *EASL 2018 Presentation*
3	NGM282 1 mg (28)	12W	• Non-invasive measures • Histology • Lipid mitigation	*Completed*
4	Placebo (~25) NGM282 1mg (~50)	24W	• Non-invasive measures • Histology • Lipid mitigation	*Ongoing*

NGM282 activity has been measured across a variety of imaging and serum biomarker measures, or non-invasive measures, as well as histological measures in order to provide a comprehensive assessment of the drug's activity on NASH disease pathology. The table below summarizes the preliminary data generated to date and demonstrates the consistent effect across each of the non-invasive measure of NASH in each of cohorts 1, 2 and 3 of our Phase 2 clinical trial, followed by a matrix explaining the significance of each of the metrics and biopsy measurements:

NGM282 Significantly Impacts Key Parameters Consistent with Improvements in NASH

Parameter Δ (W12-D1)	COHORT 1: DOUBLE BLIND			COHORT 2: OPEN LABEL[1]			COHORT 3: OPEN LABEL[1]
	Placebo (N=27)	3 mg (N=27)	6 mg (N=28)	0.3 mg (N=23)	1 mg (N=21)	3 mg bx (N=19)	1 mg bx (N=28)
MRI-PDFF, Absolute %	-0.9%	-9.7%	-11.9%	-5.3%	-11.0%	-11.2%	-10.8%
Absolute decrease ≥5% (% patients)	7%	74%	79%	57%	90%	100%	92%
MRI-PDFF, Relative %	-1%	-47%	-61%	-29%	-57%	-67%	-57%
Relative decrease ≥30% (% patients)	7%	85%	86%	48%	85%	100%	88%
ALT, Absolute (IU)	-2	-35	-32	-21	-43	-53	-63
ALT, Relative %	1%	-43%	-44%	-30%	-58%	-60%	-66%
PRO-C3, Absolute ng/ml	-1.2	-5.4	-3.6	-2.1	-4.7	-11.1	NA
NAS decrease ≥2 with ≥1 point reduction in inflammation or ballooning (% of patients)	NA	NA	NA	NA	NA	58%	50%
Resolution of NASH (% of patients)	NA	NA	NA	NA	NA	11%	13%
Fibrosis improvement (% of patients)	NA	NA	NA	NA	NA	42%	25%

[1] Cohorts 2-3 are preliminary data and include only those patients who completed treatment with paired biopsies.
bx: biopsy
IU: international units

A description of the key non-invasive and histological measurements collected in our NASH Phase 2 clinical trial is included in the table below:

Disease Marker	Type of Measurement	Correlation with Disease Severity or Drug Activity
Liver Fat Content, or LFC (MRI-PDFF)	Imaging biomarker	≥5% absolute LFC reductions correlated with a 2-point NAS score reduction; ≥30% relative reduction in LFC correlated with NAS score improvement and fibrosis improvement
Liver Transaminases (ALT/AST)	Serum biomarker	Increases associated with hepatic inflammation and injury due to lipotoxicity, bile acids or other pathways
PRO-C3	Serum biomarker	A protein fragment associated with collagen deposition in the fibrogenesis process. Higher PRO-C3 is correlated with more severe fibrosis
NAFLD Activity Score (NAS)	Histology	Used as a validated measure of NASH disease severity, usually requiring at least one point in each of steatosis, lobular inflammation and hepatocellular ballooning to define having NASH; not correlated with patient outcomes
Liver Fibrosis	Histology	Severity of fibrosis is directly correlated with patient outcomes (e.g., cirrhosis and hepatocellular carcinoma, or HCC)

Cohorts 2 and 3, summarized in more detail below, included patients who received liver biopsies after 12 weeks of treatment with either 1 mg or 3 mg of daily NGM282 to enable an assessment of any improvements in histological measures of NASH, such as fibrosis. Preliminary data from both the 3 mg dose group of cohort 2 and the 1 mg group of cohort 3 demonstrated that NGM282 has an impact on fibrosis regression in NASH subjects, with 42% and 25%, respectively, registering at least a one-stage improvement in fibrosis. We believe these histology results offer compelling support for NGM282's potential as a rapidly-acting agent for NASH patients with moderate to advanced fibrosis.

NGM282 Phase 2 Clinical Trial in NASH Patients: Cohort 1

In the double-blind cohort of the Phase 2 clinical trial (cohort 1), 82 subjects with biopsy-confirmed NASH were randomized to NGM282 clinical doses of 3 mg or 6 mg (n = 55) or placebo (n = 27), administered as a daily subcutaneous injection for 12 weeks. Histologic inclusion criteria included biopsy-proven NASH with a NAS $\geq$ 4 (at least 1 point in each component), F1 to F3 fibrosis and $\geq$ 8% absolute liver fat content, or LFC, by MRI-PDFF. The primary endpoint was $\geq$ 5% reduction in absolute LFC as measured by MRI-PDFF.

As published in *The Lancet* in 2018, significant reductions in absolute and relative LFC were seen with both doses, with 79% of the 6 mg-treated subjects and 74% of the 3 mg-treated subjects meeting the primary endpoint of $\geq$ 5% reduction in absolute LFC as measured by MRI-PDFF. There was no significant difference in absolute LFC reduction between the 3 mg and 6 mg doses. Normalization of absolute LFC (defined as $\leq$ 5% measured by MRI-PDFF) was observed in 26% and 39% of subjects treated with 3 mg and 6 mg, respectively, at week 12. Over 85% of NGM282 treated subjects achieved a clinically-meaningful decrease in relative LFC of $\geq$ 30%, which has been correlated to improvements in histology in several studies. These results were maintained across key baseline characteristics of gender (male *vs*. female), ethnicity (Hispanic *vs*. Non-Hispanic), diabetic status, ALT levels (< *vs*. $\geq$ 40 U/L), body mass index, or BMI, (< *vs*. $\geq$ 30), fibrosis stage (F1 *vs*. F2/F3) and statin use, with no significant difference in any sub-category.

Greater reductions from baseline in mean absolute ALT levels were observed for both NGM282 3 mg (-35 international units, or IU, p<0.0001) and 6 mg (-32 IU, p<0.0001) clinical doses at week 12 as compared with placebo. This decrease in ALT levels achieved statistical significance as early as week one, with a sustained reduction throughout the entire 12-week study treatment period. The mean relative percentage decreases in ALT levels from baseline to week 12 were also significant in both the

doses, ranging from 43% to 44% (p<0.001). ALT levels achieved normalization (defined as <19 IU in females and < 30 IU in males) in 24% of NGM282-treated patients by week 2 and 36% of treated subjects by week 12. Similarly, treatment with NGM282 resulted in significant mean absolute reductions in AST levels from baseline to week 12 as compared with placebo, with the majority of subjects decreasing below the clinically meaningful threshold of 40 IU as early as two weeks after starting treatment.

7a-hydroxy-4-cholesten-3-one, or C4, is an intermediate in the classical bile acid synthesis pathway that is produced by the rate-limiting enzyme, CYP7A1. When activated, FGFR4 leads to a reduction in serum C4 levels. C4 levels were measured in patients to track target engagement by NGM282 and to determine how levels of C4 correspond to measures of therapeutic effect, such as reductions in liver transaminase levels. At both the 3 mg and 6 mg dose levels, serum concentrations of C4 were significantly reduced relative to placebo after one week of treatment, with more than 65% of patients at or below the limit of detection in the C4 assay. Levels of liver ALT and AST released from injured or dead hepatocytes are significantly elevated in NASH patients and can be measured as serum biomarkers of liver health. Reductions in serum levels of ALT and AST follow a similar time course as C4 reduction. We believe the potent and sustained inhibitory effect that NGM282 has on the classical bile acid synthesis pathway is important to achieving its therapeutic effect. FXR agonists can only elevate FGF19 to the upper end of normal physiological levels, which we believe is insufficient to achieve the complete and sustained inhibition of the classical bile acid pathway.

PRO-C3 levels, as well as levels of propeptide of type III procollagen, or PIIINP, and TIMP metallopeptidase inhibitor 1, or TIMP-1, which are components of the Enhanced Liver Fibrosis, or ELF, score, were reduced in the treated subjects, supporting a potential anti-fibrotic effect. Notably, more than 74% of NGM282-treated subjects achieved a reduction in PRO-C3 levels of $\geq$15% at 12 weeks, as compared to 24% of placebo-treated subjects. The overall ELF score for the 3 mg- and 6 mg-treated subjects was reduced by an average of 0.3 and 0.2, respectively, compared to no change for the placebo group.

Triglyceride level decreases were consistent with FGFR1c/KLB activity triggered by NGM282, while significant LDL cholesterol increases reflect potent FGFR4/KLB-mediated CYP7A1 inhibition. There were highly significant correlations between decreases in LFC and reductions in the serum levels of ALT, AST and C4.

NGM282 Phase 2 Clinical Trial in NASH Patients: Cohort 2 and 3 Imaging and Biomarker Results

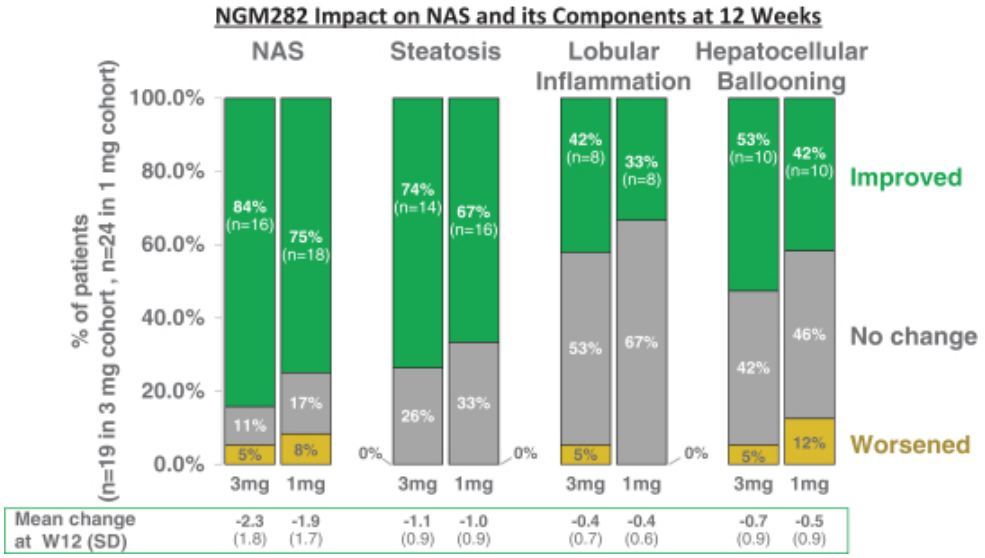
Based on the profound impact seen with NGM282 in NASH patients across the measured non-invasive parameters assessed in cohort 1, an adaptive, open-label, single-blind cohort of three dosing groups known as cohort 2 was added to evaluate: 1) lower doses of NGM282 (0.3 and 1 mg); 2) histologic response at 12 weeks in a 3 mg dose group; and 3) the ability of concomitant statin use to mitigate drug-induced LDL cholesterol elevations. Additional MRI-PDFF images were collected at week 6 to further assess the potential for LFC responses at an earlier point in time and to evaluate the persistence of response at week 18 (six weeks after the end of treatment). The demographics and baseline patient characteristics of cohort 2 were similar to those in cohort 1. Preliminary data from cohort 2 demonstrates that a significant amount of the decrease in LFC occurs by week 6 and further consolidates towards normalization at week 12 in the 1 mg and 3 mg dosing groups. The 1 mg and 3 mg dose groups in cohort 2 showed similar reductions of LFC and ALT levels, and were consistent with the week 12 changes observed with the 3 mg dose in cohort 1. Preliminary data from cohort 2 indicates that the 1 mg and 3 mg dose groups also had statistically significant reductions from baseline in PRO-C3 levels and the PIIINP and TIMP-1 components of the ELF score at week 12. The 0.3 mg dose group in cohort 2 demonstrated a reduced treatment response overall as compared to the 1 mg and 3 mg cohorts, based on the reductions in LFC, levels of ALT and the fibrosis markers. Preliminary

data indicates that, six weeks after the end of NGM282 treatment, the relative levels of LFC and ALT levels remained suppressed, with reductions approximately 20% to 39% and 16% to 44% below baseline levels across doses evaluated in cohorts 2 and 3, respectively. Similarly, reductions in PRO-C3 levels and ELF score components in NGM282-treated patients were sustained six weeks after the end of NGM282 treatment.

NGM282 Phase 2 Clinical Trial in NASH Patients: Cohort 2 (3 mg) and Cohort 3 Preliminary Histology Results

Liver histology was evaluated at 12 weeks in the 3 mg dosing group of cohort 2 and in the 1 mg dosing group of cohort 3. Each of these cohorts enrolled primarily NASH patients with moderate to advanced fibrosis. Eighty-four percent of the 19 patients in the 3 mg dosing arm of cohort 2 had been diagnosed with F2 or worse fibrosis at baseline. Eighty-three percent of the 24 patients in cohort 3 had F2 or worse fibrosis at baseline. Liver biopsies at baseline and 12 weeks were blinded by both patient and treatment sequence. They were subsequently read by a central independent liver hepatopathologist using the NASH CRN criteria. Preliminary data from cohorts 2 and 3 showed improvements in fibrosis scores in both groups, with 42% of patients in the 3 mg dosing group of cohort 2 and 25% of the patients in cohort 3 improving by at least one stage. All of the patients experiencing improvements in fibrosis scores were F2 or worse at baseline. Between the two cohorts, a total of four patients achieved a two stage improvement in fibrosis during the 12 weeks of treatment (three in the 3 mg dosing group of cohort 2 and one in cohort 3). There were two subjects in the 3 mg dosing group of cohort 2 who worsened by one stage in fibrosis (Stage 1b to 2 and Stage 3 to 4), with no clinically meaningful worsening of their NAS and reductions in LFC and ALT. Four patients in cohort 3 worsened by one stage in fibrosis. While each cohort involved a relatively small number of patients, these preliminary results demonstrated, for the first time, the possibility of improving fibrosis in F2 to F4 NASH subjects in as early as 12 weeks of treatment with a therapeutic agent. In addition, the patients with fibrosis improvements also had a mean reduction in NAS of 3.5 and 3.2 in the 3 mg dosing group of cohort 2 and cohort 3, respectively.

At 12 weeks, NGM282 treatment resulted in resolution of NASH, defined as having a lobular inflammation score of 0 or 1 and a hepatocellular ballooning score of 0 with no worsening of fibrosis, in two patients in the 3 mg dosing arm of cohort 2 and three patients in cohort 3. Furthermore, 58% and 50% of patients achieved NAS improvements of two points or greater (with at least one-point reduction in lobular inflammation or hepatocellular ballooning) in the 3 mg dosing arm of cohort 2 and cohort 3, respectively. We anticipate that an increased proportion of patients could achieve resolution of NASH over a longer treatment duration beyond 12 weeks. In conjunction with the fibrosis improvement described above, these data support the notion that NGM282, as a single agent, has the potential to improve NASH and fibrosis to a larger degree and in a shorter period of time than other investigative agents have demonstrated to date.

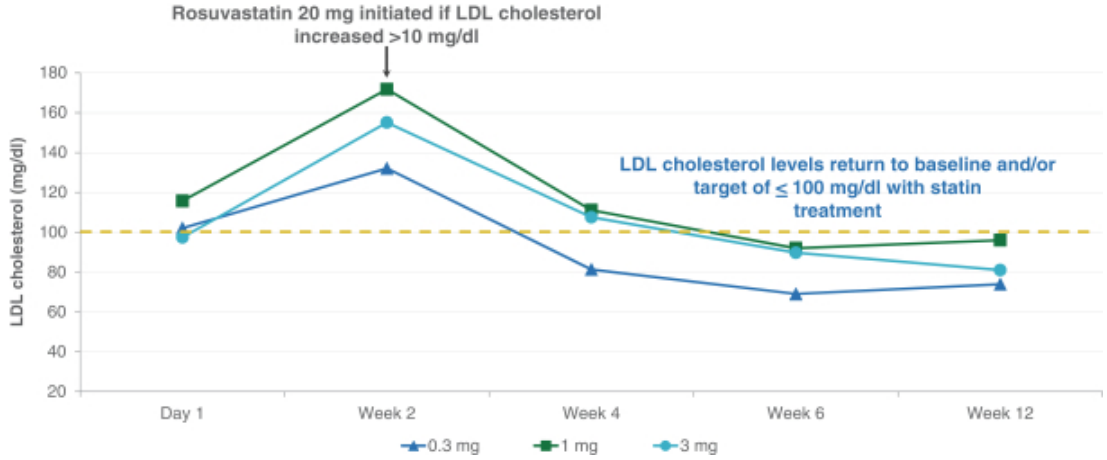


NGM282 Increases in Serum Levels of LDL Cholesterol in NASH Patients

A byproduct of NGM282's potent inhibition of the classical bile acid synthesis pathway is the elevation of LDL cholesterol in the serum. Cholesterol serves as the precursor molecule in a multi-step enzymatic pathway that generates various forms of bile acids. CYP7A1 is the rate-limiting enzyme in this pathway and, therefore, serves as a regulatory control point for the primary pathway for bile acid synthesis, also known as the classical pathway. Notably, there is an alternative pathway for bile acid synthesis that is not regulated by CYP7A1 activity and produces a subset of the bile acid pool that is believed to produce less caustic varieties of bile. We believe a primary role of FGF19 and NGM282 is to inhibit bile acid synthesis through the classical pathway by activating a signaling cascade that shuts down CYP7A1 activity. As a direct effect of this on-target activity, cellular cholesterol is no longer metabolized to bile acids and is instead shunted into the blood stream, causing an elevation of serum LDL cholesterol. We have not observed the same magnitude of LDL cholesterol elevations with NGM282 in trials we have conducted in cholestatic disease patients, such as PBC and PSC.

We believe elevated serum LDL cholesterol is a confirmatory indication of NGM282 and FGF19 activity in NASH patients, which correlates with its beneficial effects on liver health. The impact of these drug-induced changes in cholesterol are unknown. Sustained LDL cholesterol elevations in untreated patients, however, are associated with cardiovascular disease through atherosclerotic plaque development. Through both preclinical studies in cynomologous monkeys and in cohorts 2 and 3 of our Phase 2 clinical trial, we have demonstrated the ability of concomitant statin use to mitigate the

serum LDL cholesterol elevations driven by NGM282 activity. The figure below illustrates the mean LDL cholesterol levels over time for patients in cohort 2. Per protocol, the patients' LDL cholesterol levels were measured at baseline and then re-measured after two weeks of NGM282 treatment. If an elevation of LDL cholesterol of at least 10 mg/dl was recorded, patients were directed to take 20 mg of rosuvastatin daily for the remainder of the trial. Nearly all of the treated patients required statin use in cohorts 2 and 3. Where required, patients were elevated to 40 mg rosuvastatin to adequately control their LDL cholesterol while on treatment. Notably, approximately 80% of cohort 2 and 87% of cohort 3 at enrollment were not previously receiving statin treatment and, on average, the cohorts had baseline LDL cholesterol levels at or above recommended levels recommended by the American Association of Clinical Endocrinologists and the European Society of Cardiology/European Atherosclerotic Society, suggesting a statin would already be prescribed as standard of care. For each dose level in cohorts 2 and 3, concomitant statin use mitigated the drug-induced LDL cholesterol rise indicative of CYP7A1 suppression and, in many cases, brought patients below their baseline levels. Additionally, we have investigated the composition of the drug-induced LDL cholesterol particles. This analysis indicated that the NGM282-induced serum LDL cholesterol manifests as large and potentially less atherogenic lipoproteins, as opposed to the small dense lipoparticles that are thought to be more atherogenic. We believe concomitant statin use, along with NGM282's triglyceride lowering and high density lipoprotein, or HDL, cholesterol elevating properties, will provide an overall neutral to positive impact on patients' cardiovascular health.



NGM282 Phase 2 Clinical Trial in NASH: Safety and Tolerability Profile

The most common adverse events in cohorts 1, 2 and 3 included increased stool frequency, loose stools, nausea and injection site erythema, with the majority being Grade 1 (mild). Preliminary data indicates that there were no tolerability signals identified in this population. The tolerability in cohorts 1, 2 and 3 are consistent with those observed in other study populations, including type 2 diabetes, PBC and PSC.

NGM282 Future Clinical Development Plans

In addition to our ongoing cohort 4, we are planning to begin, in the first quarter of 2019, a Phase 2b clinical trial that will test two additional dose levels of NGM282 in NASH patients with F2 and F3 fibrosis. The Phase 2b clinical trial will be a multi-center, double-blind, placebo-controlled study administering 0.3 mg or 3 mg of NGM282 or placebo, once daily, subcutaneously for 24 weeks. We expect approximately 150 patients will be enrolled across 30 sites in the United States. Patients will

receive liver biopsies to qualify for the trial and at end of treatment. The primary objective of this 24-week trial will be to measure the treatment effect of NGM282 dosing on liver histology according to preliminary FDA recommended Phase 3 endpoints of resolution of NASH with no worsening of fibrosis, and fibrosis improvement with no worsening of NASH, as defined above. Enrollment criteria and study conduct will be similar to cohorts 3 and 4 of the NASH Phase 2 clinical trial.

Our development strategy is to generate the results of our 24-week double-blind, placebo-controlled cohort 4 trial in 2019 and leverage these results to inform Phase 3 planning and design. We expect our Phase 2b clinical trial results in 2020 will provide further information to compile a detailed package for the regulatory agencies to support a pivotal, single dose level, Phase 3 program to enable a BLA filing.

We are also planning to initiate a clinical program testing NGM282 in a population of NASH patients with compensated cirrhosis without the presence of esophageal varices. The objective of this trial is to evaluate whether the fibrosis regression and NAS improvements we have observed in patients with F2 and F3 fibrosis can also be achieved in early, or compensated, cirrhotic NASH patients, for which liver mortality rates are high and liver transplant is the only option. In 2030, the population of compensated cirrhotic NASH patients in the United States and EU is expected to reach 4.9 million.

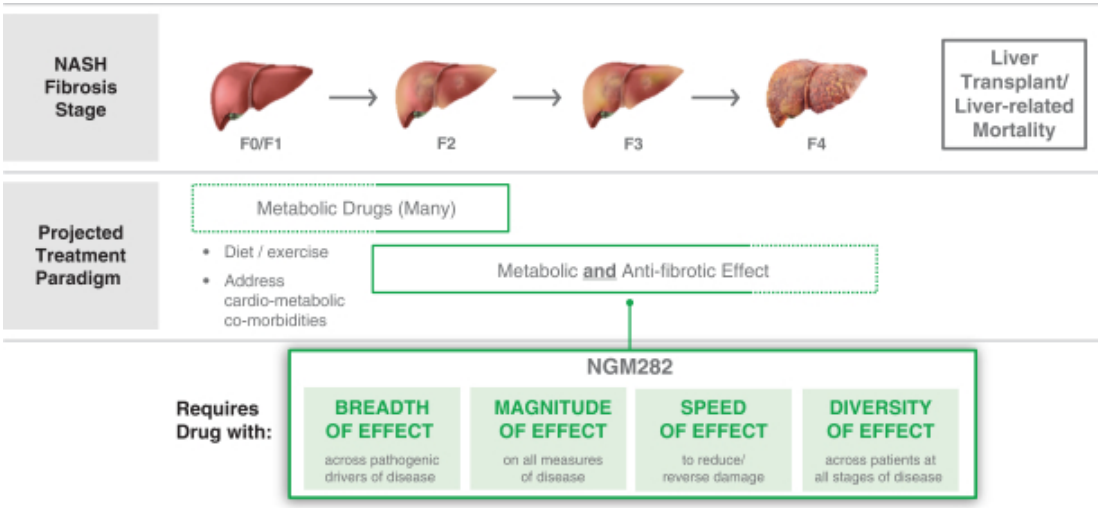
We believe the totality of the data produced by these Phase 2 clinical trials will provide insights required to appropriately design Phase 3 clinical trials required for drug approval and optimally position the therapeutic in the market.

Future Commercial Positioning of NGM282 as a Therapeutic in the NASH Market

We believe the clinical data produced with NGM282 in NASH patients to date suggests a potential drug profile that is unique in the current landscape of NASH therapeutics in development. Our preliminary data suggests NGM282 is capable of improving fibrosis in patients after only 12 weeks of treatment, while also exerting a positive impact on the other parameters of NASH, including steatosis, lobular inflammation and hepatocellular ballooning. We believe that NGM282's initial signals of activity observed after 12 weeks of treatment with NGM282, while significant in effect, will lead to further improvement after 24 weeks of treatment. In particular, we believe NAS and fibrosis improvement are enabled by the liver's natural regenerative properties once the multiple insults of toxic fatty and bile acids are diminished. Our clinical results have shown that markers of liver steatosis and inflammation are reduced in a broad set of patients in the first few weeks of treatment. After only 12 weeks, this environment has allowed the liver to begin healing, but patient healing rates may vary and we believe the process has not reached its full potential. These properties are in contrast to other agents in development that, after 24 weeks or longer treatment, have either only shown impact on NAS components or a modest effect on fibrosis, and may have tolerability or safety issues.

If our initial signals of activity continue in later-stage clinical development, we believe that NGM282, as a once-daily injectable medication, will be well suited to treat NASH patients with F2, F3 and, potentially, early F4 fibrosis. Together, these target patient populations were believed to encompass approximately 6.7 million patients in the United States alone in 2015, and are expected to grow to 14.1 million by 2030. As diagrammed below, our goal is to position NGM282, if approved, to physicians as a potent, rapidly-acting medication that can repair NASH-damaged livers to avoid progression to end-stage liver disease and liver transplantation. This advanced disease population is typically under the care of hepatologists, as contrasted with the typically asymptomatic early-stage NASH population, the majority of whom have not yet been diagnosed. We expect other agents in development, many of which are delivered orally, will serve a complementary role in the treatment of

earlier-stage disease or may ultimately require combination treatment with other mechanisms to have an improved effect over its single-agent activity.



Commercial Product Development and Life-cycle Management

The drug product format of NGM282 for our clinical trials to date has been a pre-filled single-use glass syringe. Our manufacturing group is developing a formulation of the agent to enable testing a more commercially-attractive format in the form of a multi-use auto-injector pen, similar to the devices currently delivering injectable type 2 diabetes treatments. We expect that the multi-dose auto-injector pen format will be available for parallel testing in Phase 3 development and, therefore, validated for product launch, if the agent is approved. Our objective is to present a multi-dose pen with needle gauge 29 or smaller, which will be familiar to the large number of NASH patients with type 2 diabetes who also require injections of insulin or GLP-1 products.

Longer term, we are pursuing a life-cycle management strategy to develop a longer half-life version of NGM282 that will require less frequent dosing. At present, we have programs investigating delayed-release technologies and protein modification to support this strategy. These efforts are currently at the research stage.

Early NGM282 Clinical Development and Preclinical Development

Our development program for NGM282 in NASH has been informed by several precursor and parallel clinical studies, as well as preclinical findings in a variety of NASH animal models. In all clinical trials, NGM282 had an acceptable tolerability profile. A summary of the studies conducted with NGM282 are listed below:

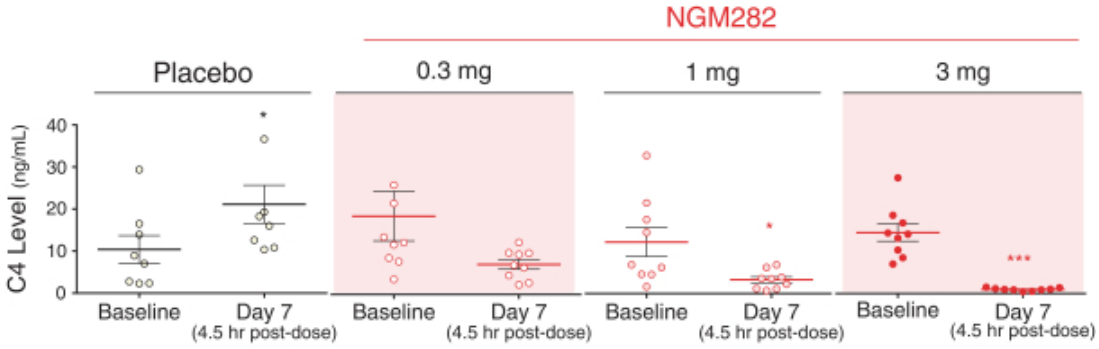
NGM282 Phase 1 Clinical Trial

We conducted a Phase 1 randomized, double-blind, placebo-controlled, single ascending dose, or SAD, and multiple ascending dose, or MAD, study to evaluate the safety, tolerability and pharmacokinetics of NGM282 in healthy adult participants.

Our Phase 1 clinical trial with NGM282, which is emblematic of our overall drug discovery approach in that we design early clinical trials to assess the translatability of preclinical studies to

humans, demonstrated a favorable tolerability profile, with signs of biological activity consistent with FGF19-like activity related to FGFR1c and FGFR4 signaling, suggesting potential utility as a treatment for NASH.

In this blinded, placebo-controlled, Phase 1 clinical trial, overweight or obese but otherwise healthy adults were randomized to receive NGM282 or placebo as a daily subcutaneous injection in escalating doses. A rapid and dose-proportional reduction of serum C4 concentrations indicated that NGM282 has a statistically significant effect on bile acid synthesis at the 0.3 mg, 1 mg and 3 mg doses. A mean reduction of approximately 94% in serum C4 concentrations was noted at 3 mg when compared with pre-dose levels. This rapid reduction in C4 levels supports the potential biological activity of NGM282 as an inhibitor of CYP7A1-mediated bile acid synthesis.



Note: Two outlier data points not shown on graphs (placebo, Day 7: 45.1 ng/mL; 0.3mg NGM282 at baseline: 62.1 ng/mL)

*p<0.05 *vs.* baseline values
***p<0.001 *vs.* baseline values

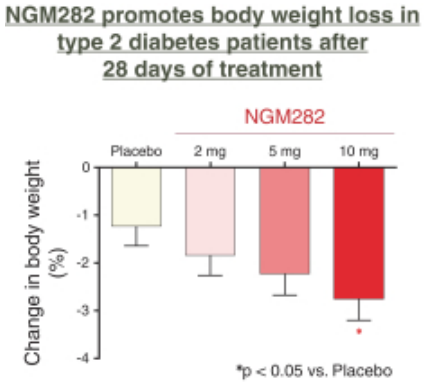
Laboratory analysis of blood samples collected from subjects receiving NGM282 in the Phase 1 MAD trial showed administration of the drug was associated with statistically significant reductions in triglyceride levels at doses of 1 mg and greater ($p<0.05$), and a statistically significant increase in total cholesterol concentrations ($p<0.05$).

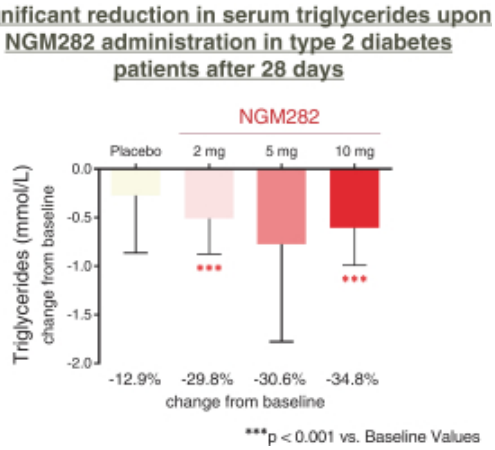
In both the SAD and MAD trials, NGM282 was well tolerated and exhibited approximately linear pharmacokinetics with no immunogenicity. There were no serious adverse events. The most frequently observed adverse events were diarrhea, vomiting, nausea and injection site reactions. Also, there were no laboratory changes in NGM282-treated subjects that would indicate an abnormality in any organ system, as determined by the Safety Data Monitoring Committee for the study, nor were anti-drug antibodies, or ADAs, observed.

NGM282 Phase 2a Clinical Trial (Type 2 Diabetes)

We conducted a 28-day, randomized, double-blind, multi-center trial to evaluate NGM282 in subjects with type 2 diabetes that were inadequately controlled by metformin. As a consequence of the contribution of obesity and insulin resistance to both conditions, there is a substantial overlap in the prevalence of type 2 diabetes and NASH patients. The type 2 diabetes trial was also designed to measure several of the metabolic parameters that are believed to play a role in the disease progression of NAFLD and NASH, including indicators of insulin sensitivity, triglyceride levels and liver transaminases, such as ALT and AST, enzyme levels. Three doses of NGM282 were tested to assess changes from baseline in biochemical markers associated with type 2 diabetes, such as fasting plasma glucose and stimulated glucose/insulin.

The primary endpoint measured by this trial was the change in fasting plasma glucose after 28 days of treatment. Although this endpoint was not different in the NGM282 subjects as compared to the control arm, there were trends towards improvement in insulin sensitivity, as measured by HOMA-IR, and a statistically significant weight loss observed in the 10 mg group, which lost an average of 2.6 kilograms over the 28 days of treatment ($p<0.05$). Moreover, there was a statistically significant reduction in triglyceride concentrations with the 2 mg ($p<0.001$) and 10 mg ($p<0.001$) doses, and dose-dependent reductions in ALT and AST levels, consistent with improvements in liver health. However, as this trial did not meet its primary endpoint, we decided not to pursue development of NGM282 in type 2 diabetes. The trial did establish that NGM282 demonstrated improvements in both metabolic and liver health in a patient population that closely resembles NASH patients.





Overall, NGM282 was well tolerated at each dose. There were no serious adverse events reported, though nine subjects withdrew due to adverse events. The most frequently observed adverse events were GI side effects, which were primarily loose stools/diarrhea, nausea and injection site reactions. One subject developed antibodies against NGM282 that appear to cross-react with FGF19. This subject did not demonstrate any biochemical or clinical safety concerns while in the study, and we have not identified any safety concerns while monitoring the subject following the study.

NGM282 Phase 2 Clinical Trials in Cholestatic Diseases: PBC and PSC

We conducted an exploratory Phase 2a clinical trial in PBC patients testing daily subcutaneous injections of NGM282 for 28 days, and followed it with a 52-week extension study to assess longer-term safety and tolerability of daily NGM282. While both doses tested in the 28-day study met the primary endpoint of a statistically significant reduction in ALP levels (a validated surrogate endpoint by the FDA), we determined that, with two oral alternatives on the market with similar efficacy, the indication was not well-suited for NGM282.

NGM282 was well tolerated at each dose and showed no evidence of drug-induced pruritus. The majority of adverse events were mild or moderate, with one serious adverse event deemed unrelated to drug. A statistically significant elevation of LDL cholesterol concentration was not observed in this patient population.

We also conducted an exploratory Phase 2 clinical trial in PSC patients with NGM282. Unlike PBC, there are currently no approved medications for PSC and, similarly, there are no validated clinical endpoints accepted by the FDA for approval. NGM282 did not achieve the primary endpoint in the study, which was a statistically significant reduction in ALP levels at the end of treatment. While ALP

concentration has also been viewed as a possible surrogate endpoint in PSC, the correlation with disease progression is not as clear as in PBC, and the FDA is developing guidance to drug developers as to an acceptable path to approval. We do not intend to further develop NGM282 in PSC until a development path is more specifically defined in the indication. However, the results of the study also provide utility in understanding the mechanism of NGM282 across the diseases tested. Notably, PRO-C3 and ELF levels, which are markers of fibrosis, improved significantly in the treatment group, suggesting that NGM282 may also have a direct impact on fibrosis that is independent from its metabolic activity, as the PSC patient population does not have elevated liver fat content. Furthermore, a statistically significant elevation of LDL cholesterol concentration was not observed in this patient population.

The majority of adverse events were mild or moderate and resolved on treatment. Five total serious adverse events were reported in three subjects, with one deemed possibly related to NGM282 treatment (bowel obstruction).

NGM282 Phase 1 Clinical Trial in GI Motility

A consistent finding in our Phase 2 clinical trials has been an association of NGM282 to dose-related abdominal cramping and increased stool frequency. To further investigate and characterize these gastrointestinal effects, we conducted a randomized, placebo-controlled, 14-day study in patients with functional constipation that tested two doses of NGM282, 1 mg once daily and 6 mg once daily. The objective of the study was to evaluate the effects of NGM282 on colonic transit, stool frequency and consistency, hepatic bile acid synthesis, fecal fat and bile acid levels. Thirty one patients with functional constipation were randomized on a 1:1:1 basis to placebo (n=10), 1 mg NGM282 (n=10) and 6 mg NGM282 (n=11) arm. Participants underwent tests measuring baseline colonic transit at 24 hours, baseline 48 hour stool fat and bile acid measurement after eating a high fat diet for four days. Patients then received once-daily treatment with NGM282 or placebo for 14 days with transit measurements and fecal fat and bile acid content collected during the last week of the study. Four patients discontinued the trial in the 6 mg cohort (three due to diarrhea and one due to injection site reactions) and no patients discontinued treatment in the placebo or 1 mg NGM282 cohorts. Overall, NGM282 altered bowel function in this group of chronic constipation subjects through increased frequency of bowel movements, looser stool form and increased ease of passage, and significantly accelerated gastric and colonic transit. There were no significant differences in fecal fat or weight between the placebo and treatment groups, suggesting that GI effects of NGM282 are not secondary to an increase in fecal fat. We believe the results of this study show that GI side effects are primarily due to increased colonic motility, rather than increased small bowel or colonic secretion, the latter of which is more characteristic of diarrhea than loose stools. We have applied this mechanistic understanding to our clinical trial by suggesting that subjects time their dosing around meals and moderate the size of a meal in proximity to dose. While the GI side effects of NGM282 are consistent through the clinical studies conducted to date, we have observed that those patients on 3 mg and lower doses that do experience GI side effects generally report mild to moderate effects that resolve on treatment and do not lead to discontinuation of the drug.

NGM282 Engineered to Create a Non-tumorigenic Form of FGF19

Human FGF19 is only about 50% identical to its mouse ortholog, known as FGF15. *In vivo* studies have shown that transgenic mice expressing the human FGF19 hormone at proportionally greater levels than levels expressed in healthy humans develop HCC. NGM282 is a variant of FGF19, engineered to remove the tumorigenic properties of human FGF19 in mice while retaining its beneficial effects. Prior to designating NGM282 for development, we carried out an extensive *in vivo* analysis of the structure-function relationship to define the domains in FGF19 responsible for its various activities. Our goal was to identify a variant of human FGF19 that was non-tumorigenic in mice but that retained

maximal activity against both the FGFR1c/KLB and FGFR4/KLB receptor complexes so that full metabolic and bile acid effects would be maintained. We designed and evaluated over 150 FGF19 variants to identify compounds with the desired profile. NGM282 is approximately 95% identical to the naturally-occurring human FGF19, with three amino acid substitutions and a five-amino acid deletion from the amino terminus.

NGM282 retains the metabolic activity of FGF19 through the FGFR1c/KLB receptor complex and the bile acid activity of FGF19 through the FGFR4/KLB receptor complex. Importantly, NGM282 is a biased ligand of FGFR4, meaning that it selectively activates signaling through the FGFR4/KLB receptor complex in a manner that retains beneficial activity on bile acid production but does not cause HCC in mice, as shown in three different models of oncogenic potential. Furthermore, co-administration of NGM282 and FGF19 via gene delivery in a *db/db* mouse model eliminated the expected FGF19-driven HCC, suggesting that NGM282 blocked the ability of FGF19 to occupy the relevant receptor and signal in such a way as to cause HCC. We have also explored the biological mechanism that drives the FGF19 oncogenic signal in mice and have determined that the interleukin-6, or IL-6/STAT3 axis is essential for the activity. The elements of the IL-6/STAT3 axis that drive the FGF19 oncogenic signal in mice are not activated with NGM282.

NGM282's Therapeutic Potential Supported by Preclinical Animal Models of NASH

We have assessed the therapeutic potential of NGM282 in multiple animal models of NASH and have observed a consistent pattern of disease prevention and improvement. The animal models in which we have tested NGM282 and the corresponding results are summarized in the table below.

Animal Model	Summary of NGM282 Activity
STAM Streptozotocin and high-fat diet-induced mouse model of NASH	• Significantly improves steatosis, lobular inflammation and hepatocellular ballooning • Decreases serum level of liver enzymes and triglycerides
High Fat, High Carbohydrate Diet-induced mouse model of NASH	• Reduces liver fat • Halts progression of liver fibrosis and inflammation
HFFC: High Fat, Fructose and Cholesterol Diet-induced mouse model of NASH	• Reduces liver fat • Halts progression of liver fibrosis and inflammation
Aged FXR Knockout Genetically-modified mice that develop a NASH-like histopathology	• Normalizes liver enzymes • Improves NAS • Reduces liver fibrosis

In addition to testing NGM282 in these animal models of NASH, we tested a variant of FGF19 that only activates FGFR4 and does not activate FGFR1c. The purpose of creating this variant was to develop a tool by which we could understand the relative contribution of FGFR4 and FGFR1c signaling to the therapeutic effects of FGF19. In the diet-induced, high fat, high fructose, high cholesterol, or HFFC, mouse model of NASH, study animals were administered viral vectors expressing either: (1) an analog of FGF19 that activates both FGFR4 and FGFR1c signaling; (2) an analog of FGF19 that activates only FGFR4 signaling; or (3) a control protein, green fluorescent protein, or GFP. After 24 weeks of treatment, the degree of liver fibrosis was compared across the study groups by means of

Sirius red staining, which is a common method of identifying fibrosis. The results demonstrated that the mice that received the analog of FGF19 that activated only FGFR4 showed nearly as much fibrosis improvement compared to the compound that activated both FGFR4 and FGFR1c.

We believe these preclinical results show that inhibiting bile acid synthesis through the FGFR4 pathway enables NGM282 to have a more rapid and direct impact on fibrosis as compared to other agents that only address the metabolic dysfunction of NASH. These data, now further supported by our Phase 2 results in biopsy-confirmed NASH patients, show the spectrum of activity enabled by mimicking the native FGF19 hormone at pharmacological levels has a potent therapeutic benefit on multiple disease drivers of NASH.

NGM313: An Insulin Sensitizer for the Treatment of Type 2 Diabetes and NASH

NGM313 is a proprietary, agonistic antibody selectively activating FGFR1c/KLB that we believe has best-in-class characteristics and has the potential to be a safe and effective once-monthly injectable insulin sensitizer for the treatment of type 2 diabetes and NASH. In Phase 1 clinical testing, NGM313 has demonstrated favorable tolerability and preliminary data has shown the agent is capable of reducing liver fat content and improving metabolic biomarkers in obese insulin resistant subjects with NAFLD after a single dose. The program is subject to an option by Merck to license upon completion of a proof-of-concept study in humans. We believe that NGM313 has the potential to be the treatment of choice for those patients with type 2 diabetes and NASH with early to moderate fibrosis.

Type 2 Diabetes

Type 2 diabetes is a common co-morbidity of obesity and NAFLD, and a disease in which the concentration of blood sugar is elevated due to an imbalance of insulin production from insulin secreting beta cells in the pancreas and insulin action at the tissue level, known as insulin resistance, causing damage to small and large blood vessels and, potentially, leading to blindness, amputation and kidney disease along with an increased risk of heart attack, stroke and premature death. In type 2 diabetes, the body's tissues become resistant to the effects of insulin over time, requiring the pancreas to produce an unsustainably large amount of insulin to compensate. The growing epidemic of obesity is driving an increasing number of diabetes sufferers, as there is a close relationship between increasing BMI and the relative risk of developing type 2 diabetes.

According to the Centers for Disease Control and Prevention, or CDC, in 2015, an estimated 30 million people in the United States had diabetes, with 1.5 million new cases being added every year. Over 80 million people in the United States are pre-diabetic, the majority of whom are expected to become diabetic in the next ten years. The medical costs of treating the diabetic patient population in the United States alone are believed to be $327 billion in 2017. Given the large patient population and high unmet need, pharmaceutical companies have developed multiple classes of therapies. The most recent classes include GLP-1 analogs, SGLT2 inhibitors and DPP-IV inhibitors, which, according to EvaluatePharma, collectively sold over $21 billion worldwide in 2017 and are expected to sell as much as $33 billion by 2022. According to EvaluatePharma, insulin, for which the recombinant human version was first introduced in 1982, and insulin analogues sold approximately $21 billion in 2017 worldwide.

The currently available types of treatments include:

- various forms of insulin replacement therapies and agents to stimulate insulin secretion, whereby the insulin levels are boosted to help decrease blood glucose levels, including recombinant insulin, sulfonylureas and meglitinides;
- agents that inhibit the absorption of glucose in the gut, increase the excretion of glucose in the kidney and/or decrease the production of glucose in the liver, thereby reducing blood glucose levels, including alpha-glucosidase inhibitors, SGLT2 inhibitors and biguanides, like metformin;

- drugs that produce a combination of insulin boosting and glucose absorption-inhibiting activity, including incretins like GLP-1 analogs, and DPP-IV inhibitors; and
- drugs that increase the body's sensitivity to insulin, thereby making the insulin present in the blood have a more potent effect on lowering blood glucose, which currently consists of thiazolidinediones, or TZDs.

The majority of patients with type 2 diabetes are insulin resistant and have associated metabolic dysregulation caused by lipid abnormalities, fatty liver, hypertension and chronic vascular inflammation. Insulin resistance and beta cell dysfunction are interrelated pathogenic states that lead to persistent hyperglycemia and development of type 2 diabetes. Insulin resistance results from defective insulin signaling in glucose recipient tissues and the persistent elevation of glucose concentrations above the physiological range, leading to increased insulin demand. Beta cell dysfunction, resulting from inadequate glucose sensing to stimulate insulin secretion, is compounded by insulin resistance and also induces hyperglycemia in patients with type 2 diabetes. Preserving beta cell function and insulin signaling in type 2 diabetes patients remain an unmet medical need as persistent hyperglycemia leads to continued progression of diabetes. Even with the multiple classes of diabetes drugs available, only about one-half of patients with diabetes achieve their glycemic goal.

Insulin Sensitizers for the Treatment of Type 2 Diabetes

Insulin resistant patients that remain inadequately controlled often have NAFLD, low HDL cholesterol level and increased waist circumference, and are likely the best candidates for treatment with insulin sensitizers. TZDs, such as pioglitazone and rosiglitazone, are a notable class of drugs that function as insulin sensitizers to potentiate the effect of insulin, improving glycemic control and dyslipidemia and, therefore, providing a valuable addition to diabetes therapy. As a monotherapy, pioglitazone improves the sensitivity of hepatic and peripheral tissue to insulin, increases insulin-dependent glucose disposal, enhances cellular responsiveness to insulin and, thus, improves dysfunction in glucose homeostasis. This decreased insulin resistance results in a durable lowering of blood glucose, insulin and hemoglobin A1c, or HbA1c levels. However, the clinical use of TZDs has been limited by the risk of adverse events, including congestive heart failure, for which there is a FDA boxed warning, weight gain, peripheral edema/fluid retention, bone fractures and an association with bladder cancer for pioglitazone.

We believe the introduction of an insulin sensitizer without the adverse effects and safety profile of the TZDs would provide a meaningful addition as combination therapy with incretins, with the goal of normalizing glucose levels in patients with type 2 diabetes. While numerous new drug classes are available, none target insulin resistance nor have the potential to resolve persistent hyperglycemia when used in combination with other available diabetes treatments.

Insulin Sensitizers for the Treatment of NASH

Insulin resistance has been implicated as a key condition leading to hepatic steatosis and, subsequently, NASH. Activation of the immune system contributes to the development of insulin resistant adipocytes that release excessive amounts of free fatty acids and cause insulin resistance and lipoapoptosis in peripheral tissues, including the liver, muscle and pancreatic beta cells. Increased hepatic triglyceride synthesis and accumulation of triglyceride-derived toxic lipid metabolites activates intracellular inflammatory pathways within hepatocytes, Kupffer and other immune cells. The subsequent activation of hepatic stellate cells leads to collagen deposition, fibrosis development and, eventually, cirrhosis of the liver. Treatments that can rescue the liver from lipotoxicity, in particular the effects of free fatty acids, by restoring peripheral tissue insulin sensitivity and/or preventing activation of inflammatory pathways and oxidative stress, hold promise for the treatment of NASH.

An estimated 65% of type 2 diabetes patients have NASH. The presence of diabetes is associated with worse liver disease and, in patients with NAFLD and NASH, type 2 diabetes is associated with more severe hepatic and adipose tissue insulin resistance, and more advanced liver steatosis, inflammation and fibrosis by liver histology. In addition, administration of insulin may increase steatosis, making the treatment of patients with type 2 diabetes and NASH challenging.

The role of insulin resistance and hyperglycemia in the pathogenesis of NAFLD suggests that improving insulin sensitivity and normalizing glucose levels could prevent the development of NASH and progression of disease. It is inconclusive whether current drugs for the treatment of diabetes, such as metformin, DPP-IV inhibitors, SGLT2 inhibitors and GLP-1 agonists, are effective for the treatment of NASH and, for some, if histological benefit is observed, it is unclear whether the effect is related to the concomitant weight loss with treatment. Proof-of-concept studies with an insulin sensitizer, pioglitazone, whose main target at the molecular level is PPAR-gamma in adipose tissue, have shown that treatment after six months, as compared to placebo, resulted in statistically significant improvements in histological findings associated with NASH, with reductions in steatosis, hepatocellular ballooning and lobular inflammation. Fibrosis scores improved significantly relative to baseline in the pioglitazone group, however, the change from baseline did not differ significantly between the placebo and pioglitazone groups after six months of treatment. Pioglitazone treatment increased hepatic insulin sensitivity and glucose clearance, which led to significant reductions in plasma free fatty acids, glucose and insulin levels in NASH patients.

With approximately 17.5 million patients in the United States with type 2 diabetes and NASH, there exists a substantial unmet medical need for a single treatment that addresses pathophysiological states common to both diseases, including insulin resistance, lipid metabolism dysfunction and increased lipotoxicity at the level of the liver. To date, of the FDA approved anti-diabetes drugs on the market, only pioglitazone and liraglutide have demonstrated a benefit on components of the NAS in controlled studies on patients with NASH. We believe NGM313 has the potential to be a best-in-class insulin sensitizer for use as monotherapy or in combination with other drug classes, like GLP-1 analogs, to halt the progression of, and potentially reverse, diabetes and NASH.

NGM313 Mechanism of Action

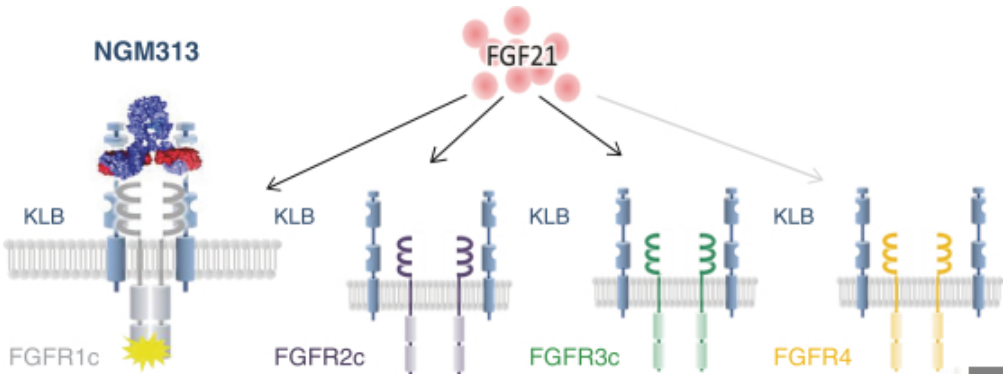
NGM313 is a humanized monoclonal agonistic antibody, with the potential for once-monthly or less frequent dosing, that binds to a unique epitope of KLB, resulting in the selective activation of FGFR1c and signaling through the metabolic pathway utilized by FGF21-based ligand therapies. FGF21 is a protein hormone that is secreted by the liver, adipocytes, pancreas and skeletal muscle. In animal testing, FGF21 plays a role in fasting and starvation by acting on adipose, or fat, cells to increase energy expenditure by stimulating glucose uptake. Notably, the effect of FGF21 on glucose uptake is additive to, but not synergistic with, insulin. Unlike insulin, the response of fat cells to FGF21 requires prolonged exposure to this hormone. Moreover, FGF21 acts to lower plasma triglyceride levels over an extended period. FGF21 also protects animals from diet-induced obesity when overexpressed in transgenic mice and lowers blood glucose and triglyceride levels when administered to diabetic rodents.

FGF21 exerts its effects on metabolic processes by signaling through the receptors known as FGFR1c, FGFR2c and FGFR3c, but not the receptor known as FGFR4. KLB functions as a co-receptor to enhance the binding of these receptors and is essential for mediating FGF21 activity. FGF receptors are expressed on cells in many tissue types, but KLB is mainly expressed in fat cells and other tissues, such as the pancreas and liver.

FGF21-based therapeutics have generated interest in the pharmaceutical research and development community because they represent a novel approach to treating multiple aspects of the

metabolic syndrome; however, attempts by other companies to translate FGF21 into a product with clinical application have had limited success. While native FGF21 is thought to have limitations for drug development, including potential effects on cortisol, bone and blood pressure, various animal studies have demonstrated that modified FGF21 ligands simultaneously regulate insulin sensitivity and blood glucose and increase energy expenditure, fat utilization and lipid excretion. Multiple pharmaceutical companies have conducted human testing of therapeutics regulating the FGF21 pathway. Administration of modified FGF21 ligands to humans results in variable improvement in insulin sensitivity, reduction in liver fat content and improvement in lipid profile and body weight loss, suggesting potential utility in treating obesity, type 2 diabetes, dyslipidemia and NASH. However, the blood glucose reductions observed in humans following dosing with modified FGF21 ligands, to date, have not been meaningful. It is thought that these FGF21-based protein therapeutics have produced inadequate glucose reductions due to a shorter than optimal half-life or counter-regulatory mechanisms triggered from activity across multiple receptor types. It has been postulated that a therapeutic regulating the FGF21 pathway with an extended half-life might improve its efficacy profile for type 2 diabetes. Furthermore, while an FGF21-based agent has demonstrated significant reductions in liver steatosis and non-invasive markers of disease in NASH subjects, the effect of FGF21 on liver histology in NASH patients has not been assessed to date.

NGM313, an Agonistic Antibody of the FGFR1c/KLB Receptor Complex



We believe that developing a specific, agonistic antibody that selectively activates the FGFR1c/KLB pathway would obviate the risks associated with therapeutics based on the native FGF21 ligand. Our development candidate, NGM313, exhibits highly specific binding with KLB, resulting exclusively in the activation of FGFR1c-mediated signaling: it does not trigger signaling through other FGF receptors, such as FGFR2c, FGFR3c or FGFR4. Moreover, as NGM313 recognizes an epitope on KLB that is distinct from the FGF19 or FGF21 binding sites, it does not compete with these natural ligands for binding with the FGFR1c/KLB complex. We believe that this non-overlapping binding site reduces the potential for side effects resulting from NGM313 inhibition of endogenous FGF19 and FGF21 hormone activity.

NGM313 Phase 1b Early Proof-of-Concept Clinical Trial SAD/MAD Trial

We conducted a Phase 1b randomized, open-label, parallel group trial to evaluate the safety, tolerability, pharmacokinetics and pharmacodynamics of a single NGM313 dose or daily oral pioglitazone in obese insulin resistant subjects with NAFLD. The Phase 1b clinical trial is an ongoing study evaluating the ability of NGM313 to decrease LFC to support the clinical development of NGM313 in NASH, as well as its effect on glucose disposal to assess the potential of NGM313 in the treatment of patients with type 2 diabetes. A single subcutaneous dose of 240 mg NGM313 was

selected based on the clinical pharmacokinetic and pharmacodynamic data, and the tolerability profile from the Phase 1 SAD/MAD trial described below. Pioglitazone was chosen as a positive control in this study as it is the only agent approved for clinical use as an insulin sensitizer for the treatment of type 2 diabetes and also has demonstrated beneficial activity in NASH patients. The highest approved daily oral dose of 45 mg pioglitazone was used in this study to provide the opportunity for maximal efficacy as a comparator in a trial with a short treatment duration of five weeks.

The primary objectives of the study are to evaluate changes from baseline in LFC as measured by MRI-PDFF at day 36 and changes from baseline in whole body insulin sensitivity at day 29 in subjects treated with NGM313 as compared to pioglitazone. Preliminary results indicated that a single dose of NGM313 resulted in a statistically significant least squares mean change from baseline to day 36 of -6.3% and -37% in absolute and relative LFC, respectively, while daily dosing of 45 mg pioglitazone resulted in a statistically significant least squares mean change from baseline to day 36 of -4.0% and -25%, respectively. The change from baseline with NGM313 treatment was not significantly different relative to that observed with pioglitazone (p=0.08), however, the study was not powered to demonstrate statistical significance between groups. Historically, a relative reduction of LFC of 29%, as measured by MRI-PDFF, was associated with a histological response of a NAS improvement of two stages or greater. In addition, preliminary results indicated that a single dose of NGM313 resulted in a mean decrease from baseline of 0.24% in HbA1c at day 36, as compared to a decrease of 0.11% with a daily dose of 45 mg of pioglitazone, without hypoglycemia. A reduction in HbA1c of the magnitude observed in this study's insulin resistant, non-diabetic patient population in this time frame supports the promise of NGM313 to potentially improve glucose control in type 2 diabetes patients. This was accompanied by statistically significant reductions from baseline in serum concentrations of fasting glucose, ALT, AST, triglycerides and LDL cholesterol, and a statistically significant increase in HDL cholesterol levels at day 28. Preliminary data indicates that NGM313-treated patients had an increase from baseline in body weight of 1.6 kg at day 36, as compared to a 2.4 kg increase from baseline in body weight with pioglitazone. This study indicated that NGM313 was well-tolerated, with no serious adverse events. All adverse events observed during the course of the study were deemed mild, with increased appetite being the only adverse event reported in at least 10% of NGM313-treated subjects. Additional data from this study is expected by the end of 2018.

Preliminary data from the Phase 1b clinical trial, in addition to the data described below from the Phase 1 SAD/MAD clinical trial, support the potential for NGM313 to be the first insulin sensitizer for the treatment of NASH and type 2 diabetes, without the safety concerns that plague currently available agents targeting insulin resistance, such as edema, fluid retention, heart failure and bone fractures. Given that the metabolic changes of NGM313 were seen after only a single dose, it is likely that a more substantial improvement would be observed after longer duration of treatment. We believe that the data from the Phase 1 program, once complete, will enable initiation of a six-month histology study in NASH subjects. If NGM313 is approved for the treatment of NASH, we expect that the drug would be used predominantly in NASH patients with early to moderate fibrosis and type 2 diabetes. We anticipate that the NASH patients with more advanced fibrosis could be treated with NGM282 in order to more quickly reverse fibrosis and bring back the liver to a healthier state, whereas NGM313 could subsequently be used to halt the progression of disease by addressing the metabolic drivers of NASH. Under our collaboration, Merck has a one-time right to exercise an option to license NGM313 following the demonstration of human proof of concept.

NGM313 Phase 1 SAD/MAD Clinical Trial

Our first-in-human Phase 1 clinical trial was a blinded, placebo-controlled study in overweight or obese but otherwise healthy adults in which single and multiple once-monthly subcutaneous injections of NGM313 or placebo were tested to evaluate the safety, tolerability and pharmacokinetics of NGM313. NGM313 was well tolerated, with signs of biological activity indicative of insulin sensitization,

after a single dose. In the SAD portion of the study, where single doses of 3 mg up to 360 mg of NGM313 were tested, small but significant mean reductions from baseline were observed in HbA1c, fasting glucose levels, fasting insulin levels and HOMA-IR at day 29, as compared to placebo. The magnitude of change in glucose parameters is consistent with what would be expected with an insulin sensitizer in these subjects with normal glycemic control. In a dose dependent fashion, total adiponectin levels, a potential biomarker of insulin sensitivity, significantly increased by approximately 140% at the 240 mg and 360 mg doses of NGM313. The significant increases in adiponectin relative to placebo remained persistent through day 57 and day 85 after a single dose of 240 mg and 360 mg of NGM313. Dose dependent changes in the lipid profile were also apparent at day 29, with increases in levels of HDL cholesterol, lower levels of LDL cholesterol and decreased levels of triglycerides that were statistically significant at the higher doses.

In the MAD portion of the study, three once-monthly doses of up to 240 mg of NGM313 were administered and, after 12 weeks, mean decreases from baseline in HbA1c, fasting glucose and HOMA-IR were observed at the higher doses relative to placebo. Similar to the SAD portion of the study, a favorable lipid profile was demonstrated at the end of treatment on day 85. An increase in placebo-subtracted body weight at end of treatment of 1.6 kg and 2.4 kg was noted in patients from the SAD and MAD cohorts that received the highest dose level of NGM313, respectively. This trend in body weight increase is consistent with the degree of insulin sensitization effects observed at these doses, and there was no evidence of edema, fluid retention or hemodilution associated with NGM313 treatment. Despite the change in weight, there was no significant increase in the waist circumference in these cohorts of subjects receiving NGM313. The beneficial changes in glucose metabolism, lipid levels and biomarkers of insulin sensitization supported further evaluation of NGM313 in patients with fatty liver and insulin resistance.

In both the SAD and MAD cohorts, NGM313 was well tolerated. There were three serious adverse events reported and they were considered to be unrelated to NGM313 or placebo. The majority of adverse events were mild to moderate in severity, and treatment-related events with the greatest proportion of subjects were gastrointestinal disorders, injection site reactions, upper respiratory tract infections, headache and increased appetite. In contrast to pioglitazone, where an increased risk of bone fractures in women has been described, there were no clinically meaningful changes in bone mineral density and bone formation and resorption markers in the MAD trial. No clinically meaningful hypoglycemia was observed with NGM313 treatment. The pharmacokinetic profile suggests that NGM313 displays nonlinear kinetics following a single dose, which is anticipated for an antibody that displays target-mediated clearance. There was some presence of anti-drug antibodies observed, but it did not appear to affect the pharmacokinetics or tolerability profile of NGM313.

NGM386/NGM395: Engineered Variants of GDF15 for the Potential Treatment of Obesity

NGM386 and NGM395, also known as MK-4820 and MK-3606, respectively, are proprietary, engineered variants of the hormone GDF15 that we are developing with Merck as once-daily and once-weekly, or less frequent, subcutaneous injections for the treatment of obesity. In 2015, we granted Merck a worldwide license to further research, develop and commercialize NGM386, NGM395 and other GDF15 agonists pursuant to our collaboration agreement. Merck is currently conducting a Phase 1 MAD clinical trial with NGM386 and is expected to initiate a Phase 1 clinical trial of NGM395 in 2019.

Obesity

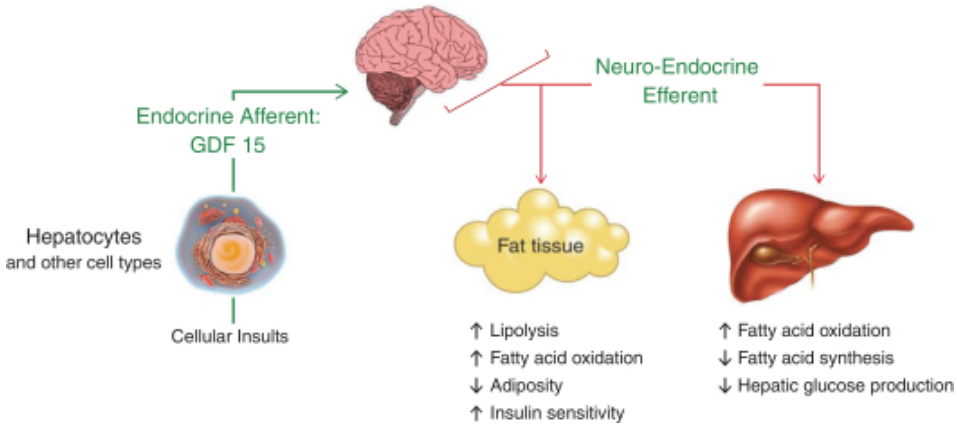
Our preclinical data with NGM386 and NGM395 suggests these may be powerful agents to promote weight loss and, therefore, also have potential to improve related cardio-metabolic diseases, including type 2 diabetes and NASH. According to the CDC, in 2015 to 2016, 40% of the U.S. adult

population and 18.5% of U.S. children are classified as obese, resulting in an estimated $190 billion of annual medical cost. The CDC declared obesity to be associated with the leading causes of death in the United States and worldwide, including diabetes, heart attacks, stroke and some types of cancer. In recognition of the rise in obesity rates and the increasing appreciation for the range of diseases associated with obesity, several medical associations, including the American Heart Association and the American Medical Association, have updated their clinical practice guidelines to recommend the use of pharmacotherapy in support of weight loss by diet and exercise in obese patients with at least one co-morbid condition. Unfortunately, existing weight loss medications in combination with diet and exercise have shown an average of only single-digit percentage weight loss in humans with lack of durable effect and are prone to safety and tolerability issues. Our drug discovery efforts have identified the GDF15 pathway as a powerful and distinct mechanism for weight loss compared to other obesity drugs in development. We believe that NGM386 and NGM395, as first-in-class analogs of GDF15, hold the potential to achieve meaningful and clinically relevant weight loss in humans.

Overview of GDF15 Pathway and Our Discovery of the GDF15 Receptor, GFRAL

GDF15, also known as MIC-1 and NAG-1, is expressed in peripheral tissues relevant to metabolic function. We identified GDF15 in an unbiased screen of putative secretory factors using our rAAV gene delivery approach in diet-induced obese, or DIO, mice. In this screen, GDF15 produced one of the most potent and efficacious metabolic responses we have observed, effectively normalizing blood glucose and significantly reducing body weight. The effects of GDF15 on food intake, energy expenditure and body weight were known. We discovered that GDF15 causes peripheral lipolysis, which is the burning of fats to create free fatty acids as a source of energy, through the sympathetic nervous system. However, the pharmaceutical industry's GDF15 drug discovery efforts had been significantly impeded by the lack of understanding regarding the identity of its cognate receptor and signaling pathways. We identified GFRAL as the exclusive, brainstem-restricted receptor for GDF15 in 2013 and, in 2017, published a landmark paper in the journal *Nature* describing its discovery and the elucidation of its crystal structure by our scientists.

Our research suggests that GDF15 is elevated in peripheral tissues following cellular insults, such as oxidative, metabolic or hypoxic stress, and may serve as a messenger hormone to communicate with the brain stem and orchestrate adaptive metabolic changes to cope with the energy demand of cells under various stress conditions. Among these adaptations are reduced food intake and a change in the fuel flux that favors the burning of free fatty acids through lipolysis, instead of burning carbohydrates. We discovered that GDF15 acts directly on GFRAL, a receptor located exclusively in the area postrema, or AP, and nucleus tractus solitarius, or NTS, of the brain stem. The AP is a circumventricular organ that is outside the blood-brain barrier, which means that it can readily sense any changes in the bloodstream. This discovery provided a mechanistic basis for the regulation by GDF15 of whole body metabolism through a distinct neural circuitry.



Elucidating the Biology of GDF15 and GFRAL

We have generated the following results supporting the biological role of GDF15 and its receptor, GFRAL:

- recombinant GDF15 protein was shown to confer potent metabolic benefits upon administration in mouse disease models, including decreased glucose levels without hypoglycemia, improved oral glucose tolerance, decreased insulin levels, increased lipolysis, reduced food intake and body weight loss;
- weight loss and metabolic effects from GDF15 expression in DIO mice were observed even at systemic levels as low as 0.6 ng/ml, a concentration comparable to the endogenous levels of this hormone found in humans;
- a mouse strain in which GFRAL was knocked out was overweight compared to normal mice when fed a high-fat diet. However, the GFRAL receptor knockout mice were non-responsive to treatment with an engineered variant of GDF15 and, unlike their normal counterparts, the animals continued to show elevated body weight and increased food intake. This suggests that GFRAL is the only receptor through which GDF15 acts to achieve its metabolic effects; and
- a surgical procedure that cuts nerves in the sympathetic nervous system traveling through the vagus nerve, known as a vagotomy, reduces GDF15-induced body weight loss but does not affect GDF15-induced anorexia. This suggests that GDF15 controls body weight through two pathways: a central pathway regulating food intake; and a peripheral, vagal-dependent pathway modulating fat utilization.

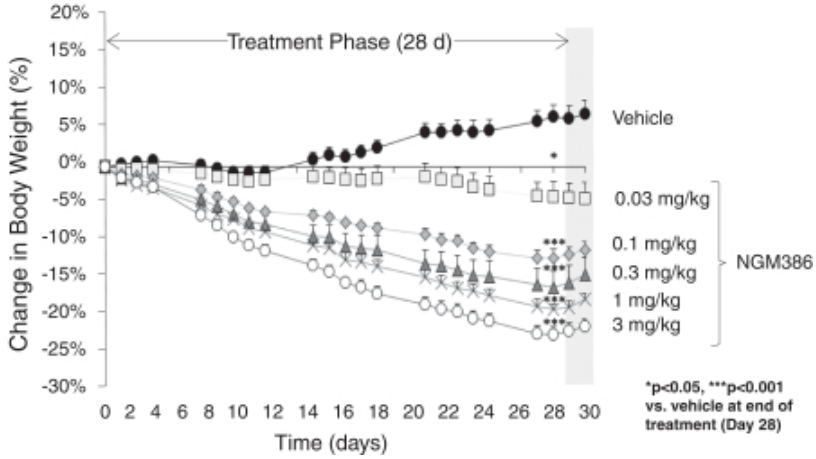
In addition to the evidence generated in our labs, independent research has reported that GDF15 gene knockout mice weigh more and have increased obesity due to increased spontaneous food

intake. Infusion of human recombinant GDF15 that raised serum levels of GDF15 knockout mice to within the normal human range led to reduced body weight and food intake in a dose-dependent fashion.

NGM386 and NGM395, Engineered Protein Variants of GDF15

We discovered in 2013 that GFRAL was the cognate receptor for GDF15 several years before other pharmaceutical companies became aware of the receptor identity. During this multi-year period we developed novel insights into the mechanism of action of GDF15 and the structure and function of the GDF15/GFRAL interaction. Through high-resolution X-ray crystallography, we discovered that GDF15 crystal structure revealed a hydrophobic region on the protein surface that we believe impairs the solubility and, therefore, the manufacturability of the native hormone. Armed with this structural information and functional assays that we were able to develop through the elucidation of the GDF15 signaling pathway, we conducted a systematic “structure-activity relationship” analysis of GDF15 and GFRAL to identify the critical functional domains of both the hormone and its receptor. With this data, we generated NGM386 and NGM395 as optimized GDF15 variants that exhibit significantly improved pharmaceutical properties. Since 2015, Merck has been responsible for the development and manufacturing of NGM386 and NGM395. NGM386 is an engineered protein variant of GDF15 that has a pharmacokinetic profile suitable as a once-daily subcutaneous injection. Merck has completed long-term toxicology studies with NGM386 in two species with no treatment-related changes in organ weight, cell morphology or clinical pathology noted beyond body weight loss and injection site reactions. Merck initiated first-in-human studies of NGM386 in 2016, and NGM386 is currently in a Phase 1 MAD clinical trial. We expect that Merck will initiate a Phase 2a proof-of-concept clinical trial if the results from Phase 1 are supportive.

Efficacy on NGM386 in DIO Mice (n=6/group)
Change in Body Weight after 28 Days *qd* Treatment



NGM395, a long-acting fusion protein variant of GDF15, demonstrated results similar to NGM386, but with weekly dosing, in preclinical studies conducted in multiple species. NGM395 is currently in preclinical development, and has completed three-month studies in two species with no observation of treatment-related changes in organ weight, cell morphology, neurobehavior or clinical pathology that were not attributable to excessive body weight loss. We expect that Merck will initiate first-in-human studies of NGM395 in 2019. We believe that Merck will evaluate the candidates in early phase trials conducted in overweight or obese but otherwise healthy adults, and that these studies could

demonstrate early proof of concept of GDF15 as a potential treatment for obesity and, potentially, other cardio-metabolic diseases, such as type 2 diabetes and NASH.

NGM120: An Antagonistic Antibody Binding GFRAL for the Potential Treatment of CACS

NGM120 is a proprietary, antagonistic antibody binding GFRAL that is designed to inhibit the effects of elevated GDF15 levels in cancer patients. GDF15 is believed to contribute to uncontrolled weight loss in these patients, also known as cancer anorexia and cachexia syndrome, or CACS, and possibly to the cancer itself. NGM120 is currently in Phase 1 trials to assess safety, tolerability and pharmacokinetics.

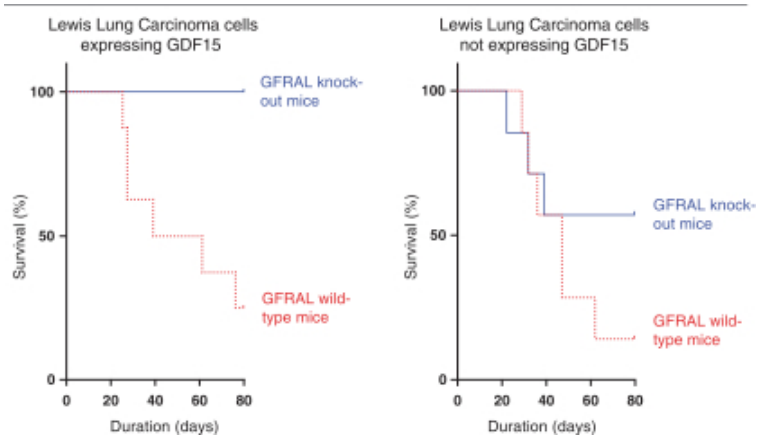
CACS—Cancer Anorexia/Cachexia Syndrome

CACS is a common co-morbidity of cancer and is associated with increased hospitalization and shortened survival compared to cancer patients that do not exhibit cachexia. While cachexia can occur in all types of cancer, particularly high incidence rates are observed in pancreatic, non-small cell lung and gastric cancers, at 54%, 36% and 67% of patients, respectively. Studies have shown that cancer patients that do not experience body weight loss have an improved prognosis. Current therapies targeting CACS are directed towards increasing appetite only, however, there is a lack of approved treatments that also address other aspects of the disease, including muscle mass loss and altered energy metabolism. A direct relationship has been established between GDF15 serum levels and cancer-associated weight loss in humans with certain cancers.

Antagonists to the GDF15/GFRAL Pathway

We believe that antagonistic antibodies blocking the interaction between GFRAL and GDF15 could provide a novel approach to developing treatments for anorexia, CACS and, potentially, cancer. Mice grafted with human tumors overexpressing GDF15 became cachectic, and this weight loss was found to be reversible by treatment with monoclonal antibodies to GDF15. In addition, in a study where Lewis Lung Carcinoma cells that were engineered to express human GDF15 were injected into wild-type and GFRAL knockout mice, tumor-derived GDF15 appears to impact survival in mice in which the GFRAL signaling pathway is intact, whereas mice lacking GFRAL are resistant to the effects of elevated GDF15 levels. This indicates the potential for anti-GFRAL antibodies to improve patient survival in certain tumor types that express high levels of GDF15, in addition to preserving body mass and preventing development of CACS.

Impact of GDF15 on Survival in Mice Implanted with Lewis Lung Carcinoma Cells

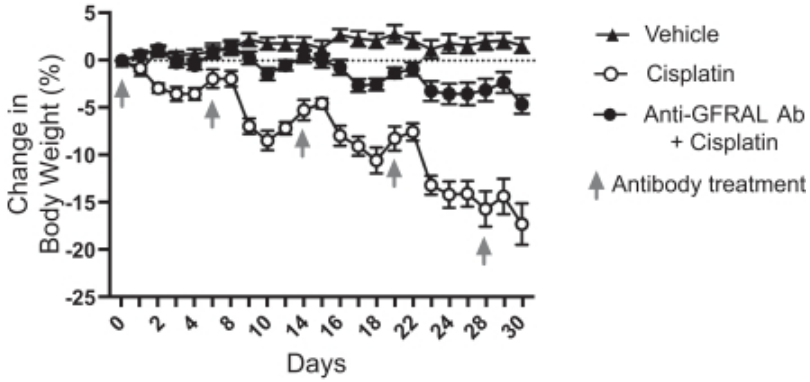


We believe that antibodies against GFRAL will be superior to antibodies against GDF15 because expression levels of GDF15 can rise dramatically in response to infection and other conditions involving cellular insult, meaning that large blood levels of antibodies antagonizing GDF15 will be required to achieve a therapeutic effect. By contrast, GFRAL is expressed at low levels in very specific regions of the brain stem, meaning that a relatively lower blood level of antibodies antagonizing GFRAL will be required to achieve a therapeutic effect.

We believe we have comprehensively characterized the receptor pathway and the structure-function relationship of GDF15 together with its cognate receptor, GFRAL. This understanding facilitated large-scale hybridoma campaigns that generated antibodies targeting key epitopes of the receptor complexes. We have generated and characterized multiple antagonistic antibodies against GFRAL, and from this portfolio, we chose to advance NGM120 as our development candidate.

NGM120, Antagonistic Antibody Against GFRAL

We designed NGM120 as a potent, humanized monoclonal antibody inhibitor of GFRAL with the potential for once-monthly or less frequent dosing. In numerous preclinical pharmacology models, NGM120 reverses and inhibits GDF15-mediated body weight loss and increases in energy expenditure. For example, treatment of mice with cisplatin, a chemotherapy commonly used to treat various cancers, resulted in body weight loss of approximately 15% after 30 days. However, treatment with an anti-GFRAL antibody prevented substantial body weight loss in this model, as shown below:



NGM120 is in Phase 1 clinical trials to assess safety, tolerability and pharmacokinetics. Both the SAD and MAD portions of the Phase 1 clinical trial are ongoing. In extensive preclinical testing, including three-month safety and toxicology studies in non-human primates and rats, NGM120 was well tolerated.

Our next study of NGM120 will be in cancer patients selected for high expression levels of GDF15, such as castration-resistant prostate cancer and pancreatic cancer. We will assess whether treatment with NGM120 leads to complete or partial responses or stabilizes disease, in addition to secondary endpoints such as CACS-related quality of life and body weight composition. Antagonistic antibodies targeting the GDF15 receptor pathway are not included in the Merck license to GDF15 analogs and are subject to Merck's future option upon completion of a human proof-of-concept study.

NGM217: A Potential Treatment for Diabetes

NGM217 is a humanized monoclonal antibody against an undisclosed target that has the potential to increase the production of insulin in the pancreas of diabetics by improving effective beta

cell function. This improvement is likely to lead to a substantial reduction in glycemic variability, which manifests as hyperglycemia or hypoglycemia in diabetics. We have initiated a Phase 1 clinical trial evaluating the safety and tolerability of NGM217 in patients with diabetes.

Impaired beta cell function leads to the progressive failure of islet cells to secrete sufficient amounts of insulin to overcome peripheral insulin resistance, resulting in failure to maintain normal glucose homeostasis over time. The ability to increase effective beta cell function could be beneficial in three diabetes patient populations: patients with type 1 diabetes; patients with latent autoimmune diabetes in adults, or LADA; and patients with type 2 diabetes that are inadequately controlled with insulin treatment. In the United States, there are approximately 1.5 million adults with type 1 diabetes, and their beta cells produce little to no insulin. LADA is characterized by the slow, progressive autoimmune destruction of beta cells and approximately 10% of patients ages 40 to 75 in the United States with type 2 diabetes have LADA. These patients often become unresponsive to oral type 2 diabetes and GLP-1 therapies, and usually require early use of insulin in order to preserve the remaining pancreatic beta cell function. For these patients, the ability to increase beta cell function closer to onset of disease would provide an additional treatment option beyond insulin. There also exists a population of late-stage type 2 diabetics who have inadequate glycemic control despite being on intensive daily insulin treatment. These patients will ultimately progress to a point where they become non-responsive to insulin. Given the significant unmet medical need among these diabetes patient populations, we believe that NGM217 has the potential to provide a desirable treatment alternative that increases the effective function of beta islet cells while slowing the rate of disease progression.

Preclinical Studies and Ongoing Phase 1 Clinical Trial

Preclinical studies assessing the safety of monthly injections of NGM217 demonstrated desirable pharmacokinetics and was well tolerated at doses that substantially exceeded the doses to be tested in humans. We have commenced a Phase 1 clinical trial to obtain safety and tolerability data, including rate of hypoglycemia, as well as selecting the proper dose for future clinical studies. Thereafter, we plan to commence a Phase 1b/2a proof-of-concept clinical trial in 2020 that investigates the ability of NGM217 to increase stimulated C-peptide, a marker of insulin production, as well as to reduce insulin requirements and improvements in glycemic control with no worsening of hypoglycemia.

NGM621: A Potential Treatment for Dry AMD

NGM621 is a humanized monoclonal antibody against an undisclosed target that has supportive human genetics data to suggest that inhibition of this pathway can effectively slow the progression of vision loss in dry AMD. AMD remains the leading cause of vision loss and blindness in people 65 years of age and over in the United States. Prevalence of AMD increases with age, and it is estimated that approximately 3 million people 40 years of age and older will be affected by AMD in the United States by 2020. AMD is a gradually progressive disease that involves the damage and degeneration of cells under the retina and, in the advanced stages, patients can develop either or both of the wet and dry form of AMD. Geographic atrophy, or GA, is an advanced form of dry AMD characterized by deposits under the retina and damage and dysfunction of retinal cells, resulting in single or multiple regions that become impaired in the central area of the retina called the macula. These patches of GA gradually enlarge to cause permanent loss of central vision. GA is prevalent in about 1 million people in the United States and over 5 million people worldwide in 2017 and occurs bilaterally, or in both eyes, in approximately 50% of patients within seven years of diagnosis.

While wet AMD is treated with anti-vascular endothelial growth factor, or anti-VEGF, therapeutics, there are currently no approved treatments for dry AMD and GA. Multiple modalities and classes of therapies are under investigation for GA, including APL-2, which is being developed by Apellis and is

expected to enter Phase 3 clinical trials in 2018, and Zimura, which is in Phase 2b clinical trials and being developed by Ophthotech. In 2017, Roche announced that lampalizumab failed to meet the primary endpoint in two Phase 3 trials in GA and, to date, no investigative treatment for GA has shown efficacy in Phase 3. Both APL-2 and Zimura are being developed as intravitreal injections that are administered once monthly or once every two months by retinal specialists, consistent with the current practice for wet AMD treatment. Given the significant unmet medical need and the importance of dosing convenience for GA patients, we believe that NGM621 has the potential to provide a desirable treatment option with improved efficacy with respect to slowing the rate of disease progression and less frequent dosing.

Preclinical Studies and Planned Phase 1 Clinical Trial

We expect to complete preclinical studies in cynomolgus monkeys to assess the safety of NGM621 intravitreal injections by the first half of 2019 to enable the planned Phase 1 and future clinical trials. Following submission of an IND to the FDA in the first half of 2019, we plan to initiate a Phase 1 SAD clinical trial in the second half of 2019 to evaluate the safety, tolerability and pharmacokinetic profile of single doses of intravitreal injections of NGM621 in GA patients.

Our Collaboration with Merck

Overview and Benefits

In 2015, we entered into a broad, strategic collaboration with Merck in order to advance novel biologic therapeutics for the treatment of highly prevalent diseases with significant unmet medical needs. The collaboration is complementary to our drug development model, and is designed to follow certain approaches used in historically successful collaboration agreements between large pharmaceutical companies and emerging biotechnology companies. The collaboration has provided us with the financial support to broaden and accelerate our existing research efforts, access to mid- and late-stage development expertise, in the future, the resources to enable large global trials and the global commercial and distribution capabilities that we believe our products will require. Importantly, this collaboration structure preserves our research independence and allows us to retain meaningful economic rights in our product candidates.

The collaboration includes an exclusive worldwide license to our GDF15 program. Under the agreement, we also granted Merck options to take exclusive, worldwide licenses, on a program-by-program basis, for the programs in our research and development pipeline. Merck generally has a one-time right to exercise its option at the point at which a program completes a human proof-of-concept trial. These options are in place through March 17, 2020; however, Merck has the option to extend our research collaboration, and thereby preserve their license option, through March 17, 2022 and thereafter to extend it again through March 17, 2024. Merck is required to inform of their intent to extend the collaboration one year prior to the expiration of a particular term. The first notification must be given by March 17, 2019. In addition, we excluded the NGM282 program from the agreement and it remains wholly owned and controlled by us.

The strategic value of our agreement with Merck can be summarized as follows:

- ***Financial Support:*** Under the terms of the agreement, Merck paid us an upfront cash licensing fee of $94 million and purchased $106 million of our Series E convertible preferred stock in 2015. In addition to the upfront cash component, Merck has committed to provide us research and development reimbursement of up to $50 million per year for at least five years. If our research and development expenses exceed $50 million in a given year and we are conducting IND-enabling or later-staged activities, Merck is required to elect either to reimburse up to an additional $25 million for use in funding IND-enabling or later-staged activities or to

provide us with the equivalent value in in-kind services for preclinical and clinical development activities. The total Merck reimbursement for our research and development activities could therefore reach $75 million per year through the first five years of the research phase. From inception of the collaboration through June 30, 2018, Merck has paid us $189 million of research and development reimbursement.

- ***Economic Opportunity:*** For programs that Merck licenses, we retain an option to participate in the development and commercialization of the drug up to a 50% cost and profit share, which includes an option to co-detail the product alongside Merck in the United States. If we elect to participate in the cost and profit share, subject to certain limitations and in addition to the committed annual funding, Merck has agreed to advance us a portion of our share of the overall development costs, which it will recoup from our share of any profit ultimately resulting from sales of the approved drug or, if unsuccessful, other compounds that reach commercialization and are subject to a cost and profit share. If we decide not to participate in the cost and profit share, Merck will owe us milestone payments and royalties as a percentage of global net sales in the low double digits to mid-teens upon commercialization. To date Merck has licensed NGM386 and NGM395 from our pipeline as part of the collaboration and our option to participate in the late-stage development and commercialization of the programs has not been triggered yet.
- ***A Sharing of Expertise:*** The collaboration provides Merck access to the deep expertise of our team *via* options on the programs emerging from our novel drug discovery approach, while it provides us with a partner experienced in running large, global, late-stage trials focused on population safety and cardiovascular outcome studies. Further, the agreement provides us with access to Merck's substantial commercial capabilities.
- ***Independence and Control Provisions:*** We maintain control over the direction and execution of our research and development program through human proof-of-concept testing, allowing our research team the freedom to seek the most promising candidates and flexibility to terminate or de-prioritize projects. In addition, we excluded NGM282 from the Merck collaboration to retain an independent clinical program and as a means to potentially enable full integration of our capabilities to position us for long-term success.

We believe our pipeline of therapies for the treatment of major diseases, like type 2 diabetes, obesity and NASH, is unusual amongst emerging biopharmaceutical companies, the uniqueness of which is further evidenced by the broad support provided by our collaboration with Merck. This collaboration provides us with a competitive advantage by enabling us to advance a portfolio of drug candidates in the cardio-metabolic area while still retaining significant economic ownership of the programs.

Detailed Description of the Merck Collaboration

In 2015, we entered into a research collaboration, product development and license agreement with Merck, covering the discovery, development and commercialization of novel therapies across a range of therapeutic areas. The collaboration includes an exclusive worldwide license to our GDF15 program, comprising NGM386 and NGM395 and other GDF15 analogs. These compounds are being evaluated for the treatment of obesity. The collaboration also includes a broad, multi-year drug discovery and early development program financially supported by Merck but scientifically directed by us with input from Merck. For those compounds resulting from this research and development program that progress through proof-of-concept studies, Merck has an exclusive option to obtain an exclusive, worldwide license. If Merck exercises its option with respect to such a compound, we in turn have the right, at the start of the first Phase 3 clinical trial for that compound, to elect to participate in a worldwide cost and profit sharing arrangement with Merck, as well as the option to co-detail the

compound in the United States, or we can elect instead to receive milestones and royalties from Merck based on its further development and commercialization of the compound. If we elect to participate in the cost and profit sharing arrangement, subject to certain limitations, Merck will provide us financial assistance in the form of advances of our share of the overall development costs, which it will recoup from our share of any profit ultimately resulting from sales of the compound, or if unsuccessful, other compounds that reach such stage.

Research and Early Development Program

Under the agreement, we are conducting an extensive research and early development program, the goal of which is the identification, research and development, through human proof-of-concept studies, of multiple product candidates for various therapeutic areas. Included in this program are all NGM research and development programs that existed when we entered into the agreement with Merck, with the exception of the following: NGM282, any other compounds that target FGFR4 and inhibit CYP7A1 expression (including variants or derivatives of FGF19) and any compounds that are covered by or within the scope of third party license or option rights. We determine the scientific direction and areas of therapeutic interest, with input from Merck, and we are primarily responsible for the conduct of all research, preclinical and early clinical development activities, through human proof of concept. We make the final determinations as to which compounds to advance into and through initial clinical studies, which to progress into proof-of-concept studies, and the design of any proof-of-concept studies, with input from Merck through various governance committees. Under this research and early development program, we also are responsible for the preclinical development of NGM386 and NGM395. Upon completion of those activities, we will transfer the GDF15 program to Merck, which will be responsible for all human clinical trials for these compounds.

The research and early development program has an initial term of five years, until March 17, 2020, and Merck has the right to extend this period until March 17, 2022 and thereafter to extend it again until March 17, 2024. We refer to this five, seven or nine-year period as the research phase of the collaboration.

Under the agreement, Merck reimburses the internal and external costs of our research and early development activities in an amount up to $50 million per year during the initial five-year term, based on an estimated annual budget. If we exceed this budget in a particular year, and if the program is such that we are at that time performing IND-enabling studies, Merck is required to elect either to reimburse up to an additional $25 million for use in funding IND-enabling or later-staged activities or to provide us with the equivalent value in in-kind services for preclinical and clinical development activities. The total Merck reimbursement for our research and development activities could therefore reach $75 million per year through the first five years of the research phase. From inception of the collaboration through June 30, 2018, Merck has paid us $189 million of research and development reimbursement. If Merck elects to extend the research phase by either or both of the two-year extensions, the level of funding that Merck will provide to us during each extension will be negotiated at the time of the extension, subject to certain minimum and maximum funding limits based on a percentage of the then-existing funding. With two exceptions, Merck may not terminate its annual funding of the research and early development program prior to March 2020. Those two exceptions are: (i) if we are acquired by a third party; or (ii) if we are in material uncured breach of our obligations under the research and early development program.

At the end of the research phase, Merck has the right to either require us to continue to conduct research and development activities with respect to certain of the then-existing programs for up to three years, which we call the tail period, by agreeing to pay all our internal and external costs for related work, or to take over such selected programs and conduct such research and development activities itself, at its own cost, during the tail period.

Merck Option to License NGM Programs

During the research phase, or during the tail period, if there is one, following completion of a proof-of-concept study for a particular compound, regardless of the results of such study, Merck has the one-time option to obtain an exclusive, worldwide license, on specified terms, to that compound, as well as to all other molecules that are directed against the same target and that result in the same effect on such target, which we refer to as an Optioned Program. If Merck exercises its license option, Merck will be responsible, at its own cost, for the further development and any commercialization activities for compounds within that Optioned Program, subject to our options to cost and profit share worldwide, and to co-detail those compounds in the United States, as further described below.

If Merck does not exercise its license option with respect to a particular compound within a limited period of time, we will retain all rights to research, develop and commercialize that compound and its related molecules on a worldwide basis, either alone or in partnership with a third party, subject to the payment to Merck of certain royalties on any commercial sales of any resulting products. If, however, Merck does not exercise its license option because it determined further development of the compound was not warranted for technical, safety or efficacy reasons, and if later in the research phase we again complete a proof-of-concept study with the compound or a related compound, Merck's option rights would nonetheless apply to the compound for a limited period of time. We also retain all rights to programs which have not completed proof-of-concept studies by the end of the research phase, or the tail period, if there is one.

NGM Option to Elect Cost and Profit Share and Merck Financial Assistance

If Merck exercises its license option, then at the point where it has advanced the licensed compound to its first Phase 3 clinical trial, we have the option for a limited period of time to participate in a cost and profit sharing arrangement with Merck on that compound. Where we exercise such an option, we call such compounds NGM Optioned Products. As part of our election to exercise our option to cost and profit share, we also select the percentage share—up to 50%—that we desire to fund of the total global costs of developing and, if approved, commercializing that NGM Optioned Product. The percentage of any profits we will receive from sales of the NGM Optioned Product will be the same as the percentage share we elect to contribute to funding costs. Our right to participate in cost and profit sharing under the agreement is subject to the following limitation: if at the point in time when we are exercising our option for a licensed compound the actual costs we have incurred across all NGM Optioned Products, plus the prospective costs allocated to us across all NGM Optioned Products, plus the costs we are electing to incur if we were to exercise our option for the compound, reaches ascending thresholds, depending on the term of the research phase of the agreement, in the low single digit billions of dollars, we will not be able to exercise our option on any further licensed compounds that Merck takes forward, unless and until at the time of option exercise with respect to such further licensed compound the sum of such actual costs, prospective costs and costs we elect to incur with respect to the compound do not equal or exceed such limits.

Our agreement also provides that, following our election to cost and profit share on an NGM Optioned Product, Merck will advance to us and/or assume a specified portion of the expected global costs for that NGM Optioned Product. These advances/assumed costs are subject to an aggregate cap across all NGM Optioned Products over the course of the collaboration. We refer to the amount Merck advances/assumes as the Advanced Amount. All Advanced Amounts are treated as an accumulated but deferred cost that we owe to Merck, accrue interest and are recouped by Merck in full out of our share of any profits resulting from sales of that NGM Optioned Product before we receive any of those profits. If an NGM Optioned Product fails to generate profit sufficient to repay the balance of the Advanced Amount, the balance will be carried forward and recouped out of profits resulting from sales of any subsequent NGM Optioned Product(s), even if we did not obtain any advances from Merck on

our share of costs for such subsequent NGM Optioned Product. We are responsible for directly funding all global development and commercialization costs of an NGM Optioned Product that are over and above any Advanced Amount.

Co-Detailing Rights in the United States

For each NGM Optioned Product, we also have the option to participate in a portion of the commercial promotion, which we refer to as detailing, to up to 25% of prescribers in the United States of that NGM Optioned Product by fielding our own commercial sales force. We are required to make this election prior to receiving regulatory approval in the United States for the NGM Optioned Product. The specifics of our participation in co-detailing will be determined by the parties according to guidelines set out in the agreement. If we elect to co-detail with Merck, our costs are included in the overall shared commercialization costs, but we do not share in any greater portion of the profits than we otherwise would be entitled to for that NGM Optioned Product.

Small Molecule Research and Development

Under our agreement we also granted Merck a worldwide, exclusive right to conduct research and development on, and to manufacture, use and commercialize, small molecule compounds identified or developed by Merck that have specified activity against any target that we are researching or developing under the research and early development program and that, but for use of our confidential and proprietary information, Merck would not have discovered. If Merck ultimately does not exercise its license option to the compound we have taken through a proof-of-concept study that is directed to any such target, Merck's research license for its own small molecule program with respect to such target will become non-exclusive, but it will retain an exclusive license to any small molecule compounds that it has as of that time identified and developed. Merck has sole responsibility for research and development of any of these small molecule compounds, at its own cost. We are eligible to receive milestone and royalty payments on small molecule compounds that are developed by Merck under our license, in some cases at the same rates as those we are eligible to receive from Merck for a licensed program originating from our own research and development efforts, provided that but for use of our confidential and proprietary information, Merck would not have discovered such small molecule compounds. However, we do not have the option to cost and profit share or the option to co-detail those small molecule products.

Collaboration Governance

Our collaboration with Merck is managed by a set of joint committees composed of equal numbers of representatives from each of us and Merck. A joint research committee, or JRC, has been established to review and discuss the preclinical work that we are conducting and to solicit Merck's input on our research activities. Once we nominate a clinical candidate, a joint early development committee oversees and facilitates the conduct of preclinical and early development activities. A separate joint committee exists to oversee the research and early development of compounds within the GDF15 program. For any Optioned Program or, in the case of GDF15, when a compound from that program completes a proof-of-concept clinical trial, a joint late development committee will oversee and coordinate development. A joint commercialization committee will oversee the commercialization of any compound arising from an Optioned Program as to which we elect to cost and profit share. Decision making in these committees generally requires the agreement of both Merck's and our representatives, with unresolved issues escalating through to certain executive officers, and with us having the final say with respect to research and early development program matters and Merck having final say with respect to GDF15 program matters and late development and commercialization matters following the exercise of its option for a particular program.

Diligence

We and Merck must each use commercially reasonable efforts to perform all of our respective activities under the collaboration.

Exclusivity

During the initial research phase, plus an additional limited period of time, neither we nor Merck may directly or indirectly research, develop, manufacture or commercialize any large or small molecule product outside our collaboration with specified activity against the hormones or receptors that are the focus of the GDF15 program, for any indication. During the research phase, we may not directly or indirectly research, develop, manufacture or commercialize, outside of the collaboration, any product with specified activity against any target that we are researching or developing under the collaboration. After the research phase, if Merck exercises its license option for a program, we may not directly or indirectly research, develop, manufacture or commercialize any product with specified activity against the target that is the subject of that licensed program for so long as Merck's license to that program remains in effect.

Financial Terms

In exchange for these various rights and access to our drug discovery approach, Merck paid us an upfront cash fee of $94 million and purchased approximately $106 million of our Series E convertible preferred stock. We will receive an extension payment from Merck if it chooses to extend the initial research phase of the collaboration until March 17, 2022 and a second extension payment if it chooses to further extend the extended research phase until March 17, 2024.

If Merck exercises its license option following completion of a human proof-of-concept study, Merck is required to pay us an option fee of $20 million for each licensed program. Merck does not owe us an option fee on the GDF15 program, as that is already licensed to Merck as of the effective date of our agreement, but we nonetheless have an option to enter into a cost and profit sharing arrangement with Merck as described above for any products, including NGM386 and NGM395, and other compounds resulting from the GDF15 program.

If we do not elect to enter into a cost and profit sharing arrangement for a compound we have licensed to Merck (including any compound in our GDF15 program), we are eligible to receive milestone payments payable upon the achievement of specific clinical development or regulatory events with respect to the licensed compound for indications in the United States, the European Union and Japan of up to an aggregate of $449 million. We are also eligible to receive commercial milestone payments of up to $125 million payable for such licensed product. We are also eligible to receive royalties at ascending low double digit to mid-teen percentage rates, depending on the level of net sales Merck achieves worldwide for each licensed compound.

If Merck does not exercise its license option to a compound and we commercialize that compound or its related molecules, we will owe Merck royalties at low single digit rates. If Merck exercises its license option but then terminates its license to a program, and we take compounds in that program forward, we also owe Merck royalties on sales of those compounds, at low single digit rates.

Termination

After the research phase, Merck may terminate the overall agreement for convenience upon written notice. Subject to certain limitations, Merck may partially terminate the agreement for

convenience as it relates to the GDF15 program, or to any Optioned Program, on written notice. It may also terminate the agreement as it relates to its rights to research and develop small molecule compounds.

Either we or Merck may terminate the agreement with respect to the GDF15 program or with respect to a specific Optioned Program if the other party is in material breach of its obligations regarding that specific program and fails to cure the breach within the specified cure period. If Merck terminates a program as a result of our uncured material breach, then we would lose our option to participate in global cost and profit sharing if not yet exercised as of the time of termination, and lose our co-detailing option (whether or not exercised as of that time) for compounds arising from the GDF15 program or the relevant Optioned Program and if Merck terminates for our breach with respect to an Optioned Program and there are no other Optioned Programs at such time, then we would also be required to commence repaying any Advanced Amounts outstanding with respect to such Optioned Products. If we had exercised our option to participate in global cost and profit sharing of one or more licensed compounds arising from the program as of the time of termination, the option would remain in effect.

If we terminate the GDF15 program or an Optioned Program for uncured breach by Merck, or if Merck terminates a program for convenience, all licenses granted to Merck with respect to such program will terminate and Merck will grant to us an exclusive license under Merck's intellectual property related to the terminated program, for use in the further development and commercialization of products arising under the terminated program, subject to the payment of a modest royalty back to Merck, assign to us all related regulatory filings and approvals, and provide certain other transition assistance to us.

Merck also has the right to terminate the agreement for convenience, and for uncured material breach by us, on written notice as it relates to its license to any particular licensed small molecule compound. We in turn have the right to terminate if Merck has failed to cure any material breach as it relates to any licensed small molecule compound. If Merck terminates for convenience, or we terminate for such breach by Merck, all licenses to Merck with respect to the relevant small molecule compound terminate, but Merck retains all interest in and to the actual small molecule compound it had developed. If Merck terminates for our uncured material breach, we would continue to receive the full amount of milestones and royalties we were otherwise eligible for with respect to the relevant compounds, but we would lose our rights to participate in the various governance committees as they relate to those small molecule program compounds.

Effect of our Change in Control and Certain Competitive Acquisitions

If we undergo any change in control, which includes the acquisition of us by any third party, or the sale of all or substantially all of our assets relating to the Merck agreement to a third party, or the sale of more than 50% of our voting stock to a third party, Merck has the right to terminate our research and early development program, in its entirety, or only with respect to certain of the programs then being pursued. If it does so, all funding for the terminated programs would cease, and we would transition, at Merck's expense, to Merck any clinical studies then being conducted by us if directed by Merck. If Merck takes over the studies, it would continue to have the option to license a particular program upon completion of the first proof-of-concept study, but if Merck ceases development of the compounds prior to such proof-of-concept study, the program would revert back to us and Merck would have no further rights.

If our change in control involves another pharmaceutical company with significant annual sales of pharmaceutical products, which we refer to as a Pharma Acquisition, Merck would have certain additional rights which could only be exercised within the first year following the Pharma Acquisition.

These include: limiting our right to cost and profit share; Merck ceasing to provide any additional Advanced Amounts with respect to one or more Optioned Programs; and requiring us to repay any or all then-outstanding Advanced Amounts, plus interest, in installments; and termination of our co-detailing rights. Merck would also have the right following any Pharma Acquisition to terminate or restrict our participation on our various governance committees, and to limit the information it provides to us to higher level summaries.

If our acquirer in the event of a change in control is at that time pursuing research, development, commercialization, manufacturing, or otherwise has any rights to any compounds that modulate a target that is the subject of an Optioned Program, which we refer to as a Competing Mature Program, Merck also has certain rights, unless our acquirer elects to cease those research, development and commercialization activities. These rights include: Merck ceasing to provide any additional Advanced Amounts with respect to any compounds arising from the Optioned Program which has the same target as the Competing Mature Program, and requiring us to repay any or all then-outstanding Advanced Amounts, plus interest, in installments, with respect to any compounds arising from that Optioned Program, and termination of our co-detailing rights with respect to the relevant compounds, termination of our participation in governance committees with respect to those compounds, and restrictions on the information we receive from Merck with respect to the compounds. However, our rights to share in costs/profits with respect to any such compounds, if exercised, would remain in effect, as would any milestone or royalty payment obligations of Merck with respect to the compounds.

In addition, if our acquirer in the event of a change in control is at that time researching, developing, manufacturing or otherwise has rights to any compounds that modulate a target that is also being actively pursued under our research and early development program, and which has not reached the proof-of-concept study stage but is ready for preclinical development, which we refer to as a Competing Early Program, Merck has the right to require us to select either to provide information demonstrating that the Competing Early Program does not actually modulate the relevant target in the same manner as our candidate, or to contribute the Competing Early Program to our collaboration with Merck as though it had originated under our research and early development program, or to divest the Competing Early Program. If we contribute the Competing Early Program to our collaboration with Merck, all the same financial obligations of Merck would apply, and we would retain all of our option rights with respect to the relevant compounds if Merck exercises its license option when the first compound arising under the program completes the first proof-of-concept study.

Equity Investments by Merck

Concurrently with the execution of our collaboration with Merck, we entered into a stock purchase agreement with Merck for the purchase of 17,666,666 shares of our Series E convertible preferred stock, for an aggregate purchase price of approximately $106 million. Under a letter agreement entered in connection with this investment, Merck has the irrevocable option to purchase, and if it does not, we have the irrevocable option to require Merck to purchase, an additional amount of our shares of our common stock pursuant to a private placement conducted in parallel with this offering, up to a limit of the number of shares that will result in Merck owning up to approximately 19.9% of our outstanding shares, at the same price per share as offered to the public. If Merck elects to extend the research phase of our collaboration until March 17, 2022, it has the option to purchase an additional $5 million of our common stock at a price per share equal to the last closing price of our shares on the date it notifies us of its desire to exercise such option, and if Merck elects again to extend the research phase until March 17, 2024, it has an option to purchase another $5 million of our common stock on the same terms; with both options subject to an overall cap on Merck’s ownership interest of 19.9%.

Standstill, Lock-Up and Voting Agreements

The letter agreement also includes standstill provisions that provide that for the period that ends on the earlier of the end of our initial five-year research phase, the announcement of our intent to consummate a change in control transaction (subject to certain exceptions), or the termination of our collaboration agreement, neither Merck nor its representatives will, directly or indirectly, among other things, (i) acquire any of our securities to the extent it would result in Merck owning more than 19.9% of our shares, (ii) solicit proxies for our securities, (iii) participate in a business combination involving us, or take any action that might result in us having to make a public announcement about (i) or (ii), seek to influence our management or policies, except that Merck is not precluded from making confidential, non-public proposals to us or third parties with our express consent. In addition, during the period that ends on the earlier of the end of our initial five-year research phase, the announcement of our intent to consummate a change in control transaction, or the date on which Merck's ownership of our securities drops below 5%, Merck has agreed to vote its shares in favor of our nominees to the board of directors, increases in the authorized capital stock of the company and amendments to our equity plans approved by the board of directors, in each case as recommended by the chairman of our board of directors. Merck has also agreed, subject to specified exceptions, and during the period of our five-year initial research phase, not to sell any of its shares of our capital stock (subject to certain limited exceptions).

Government Regulation and Product Approval

The FDA and other regulatory authorities at federal, state, and local levels, as well as in foreign countries, extensively regulate, among other things, the research, development, testing, manufacture, quality control, import, export, safety, effectiveness, labeling, packaging, storage, distribution, record keeping, approval, advertising, promotion, marketing, post-approval monitoring, and post-approval reporting of biologics such as those we are developing. We, along with third-party contractors, will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which we wish to conduct studies or seek approval or licensure of our product candidates.

The process required by the FDA before biologic product candidates may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests and animal studies performed in accordance with the FDA's current Good Laboratory Practice regulation;
- submission to the FDA of an investigational new drug application, or IND, which must become effective before clinical trials may begin and must be updated annually or when significant changes are made;
- approval by an independent Institutional Review Board, or IRB, or ethics committee at each clinical site before the trial is commenced;
- performance of adequate and well-controlled human clinical trials to establish the safety, purity and potency of the proposed biologic product candidate for its intended purpose;
- preparation of and submission to the FDA of a biologic license application, or BLA, after completion of all pivotal clinical trials;
- satisfactory completion of an FDA Advisory Committee review, if applicable;
- a determination by the FDA within 60 days of its receipt of a BLA to file the application for review;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facility or facilities at which the proposed product is produced to assess compliance with current Good

Manufacturing Practices, or cGMP, and to assure that the facilities, methods and controls are adequate to preserve the biological product's continued safety, purity and potency, and of selected clinical investigation sites to assess compliance with current Good Clinical Practices, or cGCP; and

- FDA review and approval of the BLA to permit commercial marketing of the product for particular indications for use in the United States.

Preclinical and Clinical Development

Prior to beginning the first clinical trial with a product candidate, we must submit an IND to the FDA. An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol(s) for clinical studies. The IND also includes results of animal and in vitro studies assessing the toxicology, pharmacokinetics, pharmacology, and pharmacodynamic characteristics of the product; chemistry, manufacturing, and controls information; and any available human data or literature to support the use of the investigational product. An IND must become effective before human clinical trials may begin. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day time period, raises safety concerns or questions about the proposed clinical trial. In such a case, the IND may be placed on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin. Submission of an IND therefore may or may not result in FDA authorization to begin a clinical trial.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with cGCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical study. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. Furthermore, an independent IRB for each site proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial begins at that site, and must monitor the study until completed. Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of ongoing clinical studies and clinical study results to public registries.

For purposes of BLA approval, human clinical trials are typically conducted in three sequential phases that may overlap.

- ***Phase 1—***The investigational product is initially introduced into healthy human subjects or patients with the target disease or condition. These studies are designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness.
- ***Phase 2—***The investigational product is administered to a limited patient population with a specified disease or condition to evaluate the preliminary efficacy, optimal dosages and dosing

schedule and to identify possible adverse side effects and safety risks. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.

- ***Phase 3—***The investigational product is administered to an expanded patient population to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for product approval.

In some cases, the FDA may require, or companies may voluntarily pursue, additional clinical trials after a product is approved to gain more information about the product. These so called Phase 4 studies may be made a condition to approval of the BLA. Concurrent with clinical trials, companies may complete additional animal studies and develop additional information about the biological characteristics of the product candidate, and must finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, must develop methods for testing the identity, strength, quality and purity of the final product, or for biologics, the safety, purity and potency. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

BLA Submission and Review

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, nonclinical studies and clinical trials are submitted to the FDA as part of a BLA requesting approval to market the product for one or more indications. The BLA must include all relevant data available from pertinent preclinical and clinical studies, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls, and proposed labeling, among other things. The submission of a BLA requires payment of a substantial application user fee to FDA, unless a waiver or exemption applies.

Once a BLA has been submitted, the FDA's goal is to review standard applications within ten months after it accepts the application for filing, or, if the application qualifies for priority review, six months after the FDA accepts the application for filing. In both standard and priority reviews, the review process is often significantly extended by FDA requests for additional information or clarification. The FDA reviews a BLA to determine, among other things, whether a product is safe, pure and potent and the facility in which it is manufactured, processed, packed, or held meets standards designed to assure the product's continued safety, purity and potency. The FDA may convene an advisory committee to provide clinical insight on application review questions. Before approving a BLA, the FDA will typically inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving a BLA, the FDA will typically inspect one or more clinical sites to assure compliance with cGCP. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

After the FDA evaluates a BLA and conducts inspections of manufacturing facilities where the investigational product and/or its drug substance will be produced, the FDA may issue an approval

letter or a Complete Response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A Complete Response letter will describe all of the deficiencies that the FDA has identified in the BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the Complete Response letter without first conducting required inspections, testing submitted product lots, and/or reviewing proposed labeling. In issuing the Complete Response letter, the FDA may recommend actions that the applicant might take to place the BLA in condition for approval, including requests for additional information or clarification. The FDA may delay or refuse approval of a BLA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product.

If regulatory approval of a product is granted, such approval will be granted for particular indications and may entail limitations on the indicated uses for which such product may be marketed. For example, the FDA may approve the BLA with a Risk Evaluation and Mitigation Strategy, or REMS, to ensure the benefits of the product outweigh its risks. A REMS is a safety strategy to manage a known or potential serious risk associated with a product and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may require one or more Phase 4 postmarket studies and surveillance to further assess and monitor the product's safety and effectiveness after commercialization, and may limit further marketing of the product based on the results of these post-marketing studies.

Accelerated Approval Program

Any marketing application for a biologic submitted to the FDA for approval may be eligible for FDA programs intended to expedite the FDA review and approval process, such as priority review and accelerated approval. A product is eligible for priority review if it has the potential to provide a significant improvement in the treatment, diagnosis or prevention of a serious disease or condition compared to marketed products. For products containing new molecular entities, priority review designation means the FDA's goal is to take action on the marketing application within six months of the 60-day filing date (compared with ten months under standard review).

Additionally, products studied for their safety and effectiveness in treating serious or life-threatening diseases or conditions may receive accelerated approval (Subpart H and E regulations) upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of accelerated approval, the FDA will generally require the sponsor to perform adequate and well-controlled post-marketing clinical studies to verify and describe the anticipated effect on irreversible morbidity or mortality or other clinical benefit. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product.

Priority review and accelerated approval do not change the standards for approval but may expedite the development or approval process.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, which is a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the United States for which there is no reasonable expectation that the cost of developing and making available in the United States a drug or biologic for this type of disease or condition will be recovered from sales in the United States for that drug or biologic. Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the generic identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. The orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusive approval (or exclusivity), which means that the FDA may not approve any other applications, including a full BLA, to market the same biologic for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity. Orphan drug exclusivity does not prevent FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA application fee.

A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Post-Approval Requirements

Any products manufactured or distributed by us pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to record-keeping, reporting of adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing user fee requirements, under which FDA assesses an annual program fee for each product identified in an approved BLA. Biologic manufacturers and their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP, which impose certain procedural and documentation requirements upon us and our third-party manufacturers. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting requirements upon us and any third-party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMP and other aspects of regulatory compliance.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical

studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of a product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of existing product approvals;
- product seizure or detention, or refusal of the FDA to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA closely regulates the marketing, labeling, advertising and promotion of biologics. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Such off-label uses are common across medical specialties. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products.

Biosimilars and Reference Product Exclusivity

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the ACA, signed into law in 2010, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-approved reference biological product. To date, a number of biosimilars have been licensed under the BPCIA, and numerous biosimilars have been approved in Europe. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars.

Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, can be shown through analytical studies, animal studies, and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic. Complexities associated with the larger, and often more complex, structures of biological products, as well as the processes by which such products are manufactured, pose significant hurdles to implementation of the abbreviated approval pathway that are still being worked out by the FDA.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA

for the competing product containing that applicant's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of its product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

The BPCIA is complex and continues to be interpreted and implemented by the FDA. In addition, recent government proposals have sought to reduce the 12-year reference product exclusivity period. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of recent litigation. As a result, the ultimate impact, implementation, and impact of the BPCIA is subject to significant uncertainty.

Other U.S. Healthcare Laws and Compliance Requirements

In the United States, our current and future operations are subject to regulation by various federal, state and local authorities in addition to the FDA, including but not limited to, the Centers for Medicare and Medicaid Services, or CMS, other divisions of the U.S. Department of Health and Human Services, or HHS (such as the Office of Inspector General, Office for Civil Rights and the Health Resources and Service Administration), the U.S. Department of Justice, or DOJ, and individual U.S. Attorney offices within the DOJ, and state and local governments. For example, our clinical research, sales, marketing and scientific/educational grant programs may have to comply with the anti-fraud and abuse provisions of the Social Security Act, the false claims laws, the privacy and security provisions of the Health Insurance Portability and Accountability Act, or HIPAA, and similar state laws, each as amended, as applicable.

The federal Anti-Kickback Statute prohibits, among other things, any person or entity, from knowingly and willfully offering, paying, soliciting or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or in return for purchasing, leasing, ordering or arranging for the purchase, lease or order of any item or service reimbursable, in whole or in part, under Medicare, Medicaid or other federal healthcare programs. The term remuneration has been interpreted broadly to include anything of value. The Anti-Kickback Statute has been interpreted to apply to arrangements between therapeutic product manufacturers on one hand and prescribers, purchasers, and formulary managers on the other. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution. The exceptions and safe harbors are drawn narrowly and practices that involve remuneration that may be alleged to be intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Our practices may not in all cases meet all of the criteria for protection under a statutory exception or regulatory safe harbor.

Additionally, the intent standard under the Anti-Kickback Statute was amended by the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or Affordable Care Act, to a stricter standard such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, the Affordable Care Act codified case law that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act, or FCA (discussed below).

The federal false claims and civil monetary penalty laws, including the FCA, which imposes significant penalties and can be enforced by private citizens through civil qui tam actions, prohibit any

person or entity from, among other things, knowingly presenting, or causing to be presented, a false or fraudulent claim for payment to, or approval by, the federal government, including federal healthcare programs, such as Medicare and Medicaid, knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government, or knowingly making a false statement to improperly avoid, decrease or conceal an obligation to pay money to the federal government. A claim includes "any request or demand" for money or property presented to the U.S. government. For instance, historically, pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies' marketing of the product for unapproved, off-label, and thus generally non-reimbursable, uses.

HIPAA created additional federal criminal statutes that prohibit, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payors, willfully obstructing a criminal investigation of a healthcare offense, and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Like the Anti-Kickback Statute, the Affordable Care Act amended the intent standard for certain healthcare fraud statutes under HIPAA such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation.

Also, many states have similar, and typically more prohibitive, fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

We may be subject to data privacy and security regulations by both the federal government and the states in which we conduct our business. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and its implementing regulations, imposes requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to business associates, independent contractors, or agents of covered entities that receive or obtain protected health information in connection with providing a service on behalf of a covered entity. HITECH also created four new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce HIPAA and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, many state laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways, are often not pre-empted by HIPAA, and may have a more prohibitive effect than HIPAA, thus complicating compliance efforts.

We may develop products that, once approved, may be administered by a physician. Under currently applicable U.S. law, certain products not usually self-administered (including injectable drugs) may be eligible for coverage under Medicare through Medicare Part B. Medicare Part B is part of original Medicare, the federal health care program that provides health care benefits to the aged and disabled, and covers outpatient services and supplies, including certain pharmaceutical products, that are medically necessary to treat a beneficiary's health condition. As a condition of receiving Medicare Part B reimbursement for a manufacturer's eligible drugs, the manufacturer is required to participate in other government healthcare programs, including the Medicaid Drug Rebate Program and the 340B Drug Pricing Program. The Medicaid Drug Rebate Program requires pharmaceutical manufacturers to enter into and have in effect a national rebate agreement with the Secretary of HHS as a condition for

states to receive federal matching funds for the manufacturer's outpatient drugs furnished to Medicaid patients. Under the 340B Drug Pricing Program, the manufacturer must extend discounts to entities that participate in the program.

In addition, many pharmaceutical manufacturers must calculate and report certain price reporting metrics to the government, such as average sales price, or ASP, and best price. Penalties may apply in some cases when such metrics are not submitted accurately and timely. Further, these prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. It is difficult to predict how Medicare coverage and reimbursement policies will be applied to our products in the future and coverage and reimbursement under different federal healthcare programs are not always consistent. Medicare reimbursement rates may also reflect budgetary constraints placed on the Medicare program.

Additionally, the federal Physician Payments Sunshine Act, or the Sunshine Act, within the Affordable Care Act, and its implementing regulations, require that certain manufacturers of drugs, devices, biological and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) report annually to CMS information related to certain payments or other transfers of value made or distributed to physicians and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals and to report annually certain ownership and investment interests held by physicians and their immediate family members. Failure to report accurately could result in penalties. In addition, many states also govern the reporting of payments or other transfers of value, many of which differ from each other in significant ways, are often not pre-empted, and may have a more prohibitive effect than the Sunshine Act, thus further complicating compliance efforts.

In order to distribute products commercially, we must comply with state laws that require the registration of manufacturers and wholesale distributors of drug and biological products in a state, including, in certain states, manufacturers and distributors who ship products into the state even if such manufacturers or distributors have no place of business within the state. Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain. Several states have enacted legislation requiring pharmaceutical and biotechnology companies to establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, clinical trials and other activities, and/or register their sales representatives, as well as to prohibit pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical and biotechnology companies for use in sales and marketing, and to prohibit certain other sales and marketing practices. All of our activities are potentially subject to federal and state consumer protection and unfair competition laws.

Ensuring business arrangements with third parties comply with applicable healthcare laws and regulations is a costly endeavor. If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other current or future governmental regulations that apply to us, we may be subject to penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, individual imprisonment, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private "qui tam" actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and future earnings, additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance

with these laws, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we may obtain regulatory approval. In the United States and in foreign markets, sales of any products for which we receive regulatory approval for commercial sale will depend, in part, on the extent to which third-party payors provide coverage and establish adequate reimbursement levels for such products. In the United States, third-party payors include federal and state healthcare programs, private managed care providers, health insurers and other organizations. Adequate coverage and reimbursement from governmental healthcare programs, such as Medicare and Medicaid in the United States, and commercial payors are critical to new product acceptance.

Our ability to commercialize any products successfully also will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which therapeutics they will pay for and establish reimbursement levels. Coverage and reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that use of a therapeutic is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

We cannot be sure that reimbursement will be available for any product that we commercialize and, if coverage and reimbursement are available, what the level of reimbursement will be. Coverage may also be more limited than the purposes for which the product is approved by the FDA or comparable foreign regulatory authorities. Reimbursement may impact the demand for, or the price of, any product for which we obtain regulatory approval.

Third-party payors are increasingly challenging the price, examining the medical necessity, and reviewing the cost-effectiveness of medical products, therapies and services, in addition to questioning their safety and efficacy. Obtaining reimbursement for our products may be particularly difficult because of the higher prices often associated with branded drugs and drugs administered under the supervision of a physician. We may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain FDA approvals. Our product candidates may not be considered medically necessary or cost-effective. Obtaining coverage and reimbursement approval of a product from a government or other third-party payor is a time-consuming and costly process that could require us to provide to each payor supporting scientific, clinical and cost-effectiveness data for the use of our product on a payor-by-payor basis, with no assurance that coverage and adequate reimbursement will be obtained. A payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a product does not assure that other payors will also provide coverage for the product. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development. If reimbursement is not available or is available only at limited levels, we may not be able to successfully commercialize any product candidate that we successfully develop.

Different pricing and reimbursement schemes exist in other countries. In the European Union, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national health care systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost effectiveness of a particular product candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines, but monitor and control company profits. The downward pressure on health care costs has become intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country.

The marketability of any product candidates for which we receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide adequate coverage and reimbursement. In addition, emphasis on managed care, the increasing influence of health maintenance organizations, and additional legislative changes in the United States has increased, and we expect will continue to increase, the pressure on healthcare pricing. The downward pressure on the rise in healthcare costs in general, particularly prescription medicines, medical devices and surgical procedures and other treatments, has become very intense. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Healthcare Reform

In the United States and some foreign jurisdictions, there have been, and continue to be, several legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of product candidates, restrict or regulate post-approval activities, and affect the ability to profitably sell product candidates for which marketing approval is obtained. Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives.

For example, the Affordable Care Act has substantially changed healthcare financing and delivery by both governmental and private insurers. Among the Affordable Care Act provisions of importance to the pharmaceutical and biotechnology industries, in addition to those otherwise described above, are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned among these entities according to their market share in some government healthcare programs that began in 2011;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program, retroactive to January 1, 2010, to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively, and capped the total rebate amount for innovator drugs at 100% of the Average Manufacturer Price, or AMP;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts, which through subsequent legislative amendments, will be increased to 70%, starting in 2019, off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturers' outpatient drugs to be covered under Medicare Part D;

- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals beginning in 2014 and by adding new mandatory eligibility categories for individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability;
- expansion of the entities eligible for discounts under the 340B Drug Discount Program;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- expansion of healthcare fraud and abuse laws, including the FCA and the Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance;
- a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted, or injected;
- requirements to report certain financial arrangements with physicians and teaching hospitals;
- a requirement to annually report certain information regarding drug samples that manufacturers and distributors provide to physicians;
- establishment of a Center for Medicare and Medicaid Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending; and
- a licensure framework for follow on biologic products.

Some of the provisions of the Affordable Care Act have yet to be implemented, and there have been legal and political challenges to certain aspects of the Affordable Care Act. Since January 2017, President Trump has signed two executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the Affordable Care Act. In December 2017, Congress repealed the tax penalty for an individual's failure to maintain Affordable Care Act-mandated health insurance as part of a tax reform bill. Further, on January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain Affordable Care Act-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. Moreover, the Bipartisan Budget Act of 2018, or the BBA, among other things, amends the Affordable Care Act, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole". More recently, in July 2018, CMS announced that it is suspending further collections and payments to and from certain Affordable Care Act qualified health plans and health insurance issuers under the Affordable Care Act risk adjustment program pending the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment. Congress is continuing to consider legislation that would alter other aspects of the Affordable Care Act. The ultimate content, timing or effect of any healthcare reform legislation on the U.S. healthcare industry is unclear.

We anticipate that the Affordable Care Act, if substantially maintained in its current form, will continue to result in additional downward pressure on coverage and the price that we receive for any approved product, and could seriously harm our business. Any reduction in reimbursement from Medicare and other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our products. Such reforms could have an adverse effect on anticipated revenue from product candidates that we may successfully develop and for which we may obtain regulatory approval and may affect our overall financial condition and ability to develop product candidates.

Further legislation or regulation could be passed that could harm our business, financial condition and results of operations. Other legislative changes have been proposed and adopted since the Affordable Care Act was enacted. For example, in August 2011, President Obama signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend to Congress proposals in spending reductions. The Joint Select Committee on Deficit Reduction did not achieve a targeted deficit reduction of at least $1.2 trillion for fiscal years 2012 through 2021, triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect beginning on April 1, 2013 and will stay in effect through 2027 unless additional Congressional action is taken. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Additionally, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed federal legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. At the federal level, the Trump administration's budget proposal for fiscal year 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Further, the Trump administration released a "Blueprint", or plan, to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase drug manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products, and reduce the out of pocket costs of drug products paid by consumers. The Department of Health and Human Services, or HHS, has already started the process of soliciting feedback on some of these measures and, at the same, is immediately implementing others under its existing authority. While some proposed measures will require authorization through additional legislation to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. Individual states in the United States have also become increasingly active in passing legislation and implementing regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

The Foreign Corrupt Practices Act

The Foreign Corrupt Practices Act, or FCPA, prohibits any U.S. individual or business from paying, offering, or authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with accounting provisions requiring us to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls for international operations.

Additional Regulation

In addition to the foregoing, state and federal laws regarding environmental protection and hazardous substances, including the Occupational Safety and Health Act, the Resource Conservancy and Recovery Act and the Toxic Substances Control Act, affect our business. These and other laws govern our use, handling and disposal of various biological, chemical and radioactive substances used in, and wastes generated by, our operations. If our operations result in contamination of the environment or expose individuals to hazardous substances, we could be liable for damages and governmental fines. We believe that we are in material compliance with applicable environmental laws and that continued compliance therewith will not have a material adverse effect on our business. We cannot predict, however, how changes in these laws may affect our future operations.

Other Regulations

We are also subject to numerous federal, state and local laws relating to such matters as safe working conditions, manufacturing practices, environmental protection, fire hazard control, and disposal of hazardous or potentially hazardous substances. We may incur significant costs to comply with such laws and regulations now or in the future.

Competition

The biopharmaceutical industry is characterized by intense competition and rapid innovation. Although we believe that we hold a leading position in research into cardio-metabolic disease and NASH, our competitors may be able to develop other compounds or drugs that are able to achieve similar or better results. Our competitors include multinational pharmaceutical companies, specialized biotechnology companies and universities and other research institutions. Smaller or earlier-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large, established companies. We believe the key competitive factors that will affect the development and commercial success of our product candidates are efficacy, safety and tolerability profile, reliability, convenience of dosing, price, the level of generic competition and reimbursement.

There are many pharmaceutical companies, biotechnology companies, public and private universities and research organizations actively engaged in the research and development of products that may be similar to our products. A number of pharmaceutical companies, including Abbvie, Allergan, AstraZeneca/MedImmune, Bayer, Bristol-Myers Squibb, Eisai, Eli Lilly, GlaxoSmithKline, Johnson & Johnson, Merck, Novartis, Novo Nordisk, Pfizer, Roche, Sanofi and Takeda, as well as large and small biotechnology companies such as Akero, Albireo, Amgen, Cirius, Conatus, Cymabay, Enanta, Galectin, Galmed, Genfit, Gilead, Intarcia, Intercept, Madrigal, MannKind, MediciNova, Metacrine, Nalpropion, Terns, Viking, Vivus and Zafgen, are pursuing the development or marketing of pharmaceuticals that target the same diseases that we are targeting. It is probable that the number of companies seeking to develop products and therapies for the treatment of metabolic disorders, liver, oncologic and ophthalmic diseases will increase. For example, we are aware of other companies, including Enanta, Gilead, Intercept, Metacrine, Novartis and Terns that are seeking to develop FXR agonist drug candidates that modulate FGF19. Many of these and other existing or potential competitors have substantially greater financial, technical, human and other resources than we have and may be better equipped to develop, manufacture and market products. These companies may develop and introduce products and processes competitive with or superior to ours. In addition, other technologies or products may be developed that have an entirely different approach or means of accomplishing the intended purposes of our products, which might render our technology and products noncompetitive or obsolete.

If NGM282 or NGM313 were approved for the treatment of NASH, future competition could also arise from products currently in development, including: cenicriviroc, an immunomodulator that blocks

CCR2 and CCR5 from Allergan; GS-0976, an ACC inhibitor, GS-9674, an FXR agonist, and selonsertib, an ASK1 inhibitor, from Gilead; OCA from Intercept; MGL-3196, a beta-thyroid hormone receptor agonist from Madrigal; elobixibat, an IBAT-inhibitor, a FXR agonist, from Albireo; a caspase protease inhibitor from Conatus; a Galectin-3 inhibitor from Galectin; a synthetic conjugate of cholic acid and arachidic acid from Galmed; an FXR agonist from Metacrine; FXR agonists from Novartis; and a PPAR alpha/delta agonist from Genfit. The foregoing competitive risks apply to NGM282 and NGM313 and any variants of NGM282 and NGM313 we may commercialize, including the second-generation, half-life extended version of FGF19 we are currently developing.

If NGM386 or NGM395 were approved for the treatment of obesity, these products would face competition from currently approved and marketed products, including *Saxenda* (liraglutide), *Contrave* (bupropion and naltrexone), *Qsymia* (phentermine and topiramate extended-release), *Belviq* (lorcaserin HCL) and *Xenical* (orlistat). Further competition could arise from products currently in development, including Zafgen's ZGN-1061 or ZGN-1258 (MetAP2) product candidates and various FGF21 ligands in development. To the extent any of our product candidates are approved for cardio-metabolic indications, particularly obesity, the commercial success of our products will also depend on our ability to demonstrate benefits over the then-prevailing standard of care, including diet and exercise. Finally, morbidly obese patients sometimes undergo the gastric bypass procedure, with salutary effects on the many co-morbid conditions of obesity. Some of these programs have been advanced further in clinical development then our clinical programs or have already received regulatory approval.

If any of our product candidates were approved for the treatment of type 2 diabetes, these products would face competition from currently approved and marketed products, including: Biguanides; Sulfonylureas; Thiazolidinediones (TZDs); Alpha-glucosidase inhibitors (AGIs); Dipeptidyl peptidase 4 (DPP4) inhibitors; Glucagon-like peptide-1 (GLP-1) analogues; SGLT2 inhibitors; and Insulins, including injectable and inhaled versions. Further competition could arise from products currently in development, including: 11 beta HSD (Incyte, Japan Tobacco, Roche); GPR40 (Connexios, Takeda); oral GLP-1 mimetics (Novo Nordisk); and MetAP2 (Zafgen). Some of these programs have been advanced further in clinical development than our product candidates and could receive approval before our product candidates are approved, if they are approved at all.

Manufacturing

We currently use third-party manufacturers to manufacture clinical quantities of NGM282, NGM313, NGM386, NGM395, NGM217 and NGM120, and in the future for NGM621. As we advance our product candidates through clinical development and greater quantities of our biological molecules are required, we plan to continue to use third parties to manufacture our product candidates.

We also plan to rely on third parties to manufacture commercial quantities of any products we successfully develop. Among the conditions for FDA approval of a pharmaceutical product is the requirement that the manufacturer's quality control and manufacturing procedures conform to cGMP, which must be followed at all times. The FDA typically inspects manufacturing facilities every two years. In complying with cGMP regulations, pharmaceutical manufacturers must expend resources and time to ensure compliance with product specifications as well as production, record keeping, quality control, reporting, and other requirements.

Sales and Marketing

We currently have no marketing, sales or distribution capabilities. In order to commercialize any products outside of our existing collaborations that are approved for commercial sale, we must either

develop a sales and marketing infrastructure or collaborate with third parties that have sales and marketing experience.

We may elect to establish our own sales force to market and sell a product for which we obtain regulatory approval if we elect to exercise our co-detail option on a product candidate from our collaboration with Merck or if we expect that the geographic market for a product we develop on our own is limited or that the prescriptions for the product will be written principally by a relatively small number of physicians. If we decide to market and sell any products ourselves, we do not expect to establish direct sales capability until shortly before the products are approved for commercial sale.

We plan to seek third-party support from established pharmaceutical and biotechnology companies, such as Merck, for those products that would benefit from the promotional support of a large sales and marketing force. In these cases, we might seek to promote our products in collaboration with marketing partners or rely on relationships with one or more companies with large established sales forces and distribution systems.

Intellectual Property

Our success depends, in part, on our ability to obtain and maintain intellectual property protection for our product candidates, technology and know-how, to defend and enforce our intellectual property rights, in particular, our patent rights, to preserve the confidentiality of our trade secrets, and to operate without infringing the proprietary rights of others. We seek to protect our biological molecules and technologies by, among other methods, filing U.S. and foreign patent applications related to our proprietary technology, inventions and improvements that are important to the development of our business, where patent protection is available. We also rely on trade secrets, know-how, continuing technological innovation and in-licensing of third-party intellectual property to develop and maintain our proprietary position. We, or our collaborator, file patent applications directed to our key product candidates in an effort to establish intellectual property positions regarding new biological molecules relating to our product candidates as well as uses of our product candidates and/or new biological molecules for the treatment of diseases.

Patents and Other Proprietary Rights

As of August 1, 2018, we owned 24 issued U.S. patents and 30 pending U.S. patent applications (six of which are provisional applications) along with 25 issued patents and approximately 217 corresponding patent applications in foreign jurisdictions (six of which are Patent Cooperation Treaty, or PCT, applications), associated with the treatment of, cardio-metabolic, liver, ophthalmic and bile acid related diseases. The issued patents and pending patent applications contain claims directed to various aspects of our work, including compositions of matter, methods of treatment, use of our product candidates in combination with certain other therapeutics, and formulations.

Our patent portfolio includes 11 issued U.S. patents covering either the composition of matter of our NGM282 product candidate or methods of using such product candidate, including with respect to reducing glucose levels, treating type 2 diabetes, treating NASH and reducing bile acid synthesis in patients (including, specifically, patients with cholestasis, primary sclerosing cholangitis, bile acid diarrhea or NASH). These patents are expected to expire between 2032 and 2033. NGM282 is also disclosed and claimed in patent applications that are pending in the United States, and in pending patent applications and issued patents in certain foreign countries. Any changes we make to the NGM282 molecule to cause it to have what we view as more advantageous properties may not be covered by our existing patents and patent applications, and we may be required to file new applications and/or seek other forms of protection for any such altered molecule. The patent landscape

surrounding FGF19, the naturally occurring hormone upon which NGM282 is based, is crowded, and there can be no assurance that we would be able to secure patent protection that would adequately cover an alternative to our NGM282 molecule, including the half-life extended variant of FGF19 that we are developing.

Our NGM313 product candidate is covered by one issued U.S. patent which is directed to compositions of matter, among other subject matter, and is also disclosed and claimed in other applications that are pending in the United States and certain foreign countries. The issued patent is expected to expire in 2035. Any changes we make to the NGM313 molecule to cause it to have what we view as more advantageous properties may not be covered by our existing patents and patent applications, and we may be required to file new applications and/or seek other forms of protection for any such altered molecule. The patent landscape surrounding the beta klotho-FGFR1c receptor complex, the target of NGM313, is crowded, and there can be no assurance that we would be able to secure patent protection that would adequately cover an alternative to our NGM313 molecule.

Our NGM386 product candidate is covered by one issued U.S. patent which is directed to compositions of matter and methods of treating obesity, among other subject matter, and is also disclosed and claimed in other applications that are pending in the United States and certain foreign countries. The issued patent is expected to expire in 2035. Our NGM395 product candidate is covered by one issued U.S. patent which is directed to compositions of matter and methods of treating obesity, among other subject matter, and is also disclosed and claimed in other applications that are pending in the United States and certain foreign countries. The issued patent is expected to expire in 2035. Any changes we make to the NGM386 or NGM395 molecules to cause them to have what we view as more advantageous properties may not be covered by our existing patents and patent applications, and we may be required to file new applications and/or seek other forms of protection for any such altered molecule. The patent landscape surrounding GDF15, the naturally occurring hormone upon which NGM386 and NGM395 are based, is crowded, and there can be no assurance that we would be able to secure patent protection that would adequately cover an alternative to our NGM386 or NGM395 molecules.

We do not currently own or have a license to any issued patents that cover our NGM120 product candidate. However, our NGM120 product candidate is disclosed and claimed in pending U.S. non-provisional and PCT applications. The patent landscape surrounding GFRAL, the target of NGM120, is crowded, and there can be no assurance that we will be able to secure patent protection that would adequately cover NGM120, nor can there be any assurance that we would obtain sufficiently broad claims to be able to prevent others from selling competing products.

We do not currently own or have a license to any issued patents that cover our NGM217 product candidate. However, our NGM217 product candidate is disclosed and claimed in pending U.S. non-provisional and PCT applications. The patent landscape surrounding NGM217's target is crowded, and there can be no assurance that we will be able to secure patent protection that would adequately cover NGM217, nor can there be any assurance that we would obtain sufficiently broad claims to be able to prevent others from selling competing products.

We do not currently own or have a license to any issued patents that cover our NGM621 product candidate. However, our NGM621 product candidate is disclosed and claimed in a pending U.S. provisional application that we expect to use as the basis for U.S. non-provisional and PCT applications. The patent landscape surrounding NGM621's target is crowded, and there can be no assurance that we will be able to secure patent protection that would adequately cover NGM621, nor can there be any assurance that we would obtain sufficiently broad claims to be able to prevent others from selling competing products.

The actual term of any patent that may issue from the above-described patent applications claiming one of our product candidates could be longer than described above due to patent term adjustment or patent term extension, if available, or shorter if we are required to file terminal disclaimers. The term of individual patents depends upon the legal term for patents in the countries in which they are granted. In most countries, including the United States, the patent term is 20 years from the earliest claimed filing date of a non-provisional patent application in the applicable country.

The U.S. patent system permits the filing of provisional and non-provisional patent applications. A provisional patent application is not examined for patentability by the USPTO, and automatically expires 12 months after its filing date. As a result, a provisional patent application cannot mature into an issued patent. Provisional applications are often used, among other things, to establish an early effective filing date for a later-filed non-provisional patent application. A non-provisional patent application is examined by the USPTO and can mature into a patent once the USPTO determines that the claimed invention meets the standards for patentability.

Our ability to maintain and solidify our proprietary position for our product candidates and technology will depend on our success in obtaining effective patent claims and enforcing those claims once granted. We do not know whether any of our patent applications will result in the issuance of any patents, or what the scope of the claims in any future issued patents may be. Our issued patents and those that may issue in the future, or those licensed to us, may be challenged, invalidated, narrowed, rendered unenforceable or circumvented, which could limit our ability to stop competitors from marketing identical or substantially similar products or could reduce the length of term of patent protection that we may have for our products. In addition, the claims granted in any of our issued patents may not provide us with advantages against competitors with similar biological molecules or technology. Furthermore, our competitors may independently develop technologies that are similar or identical to technology developed by us but that do not infringe our patents or other intellectual property. Because of the extensive time required for development, testing and regulatory review of a potential product, it is possible that, by the time that any of our drug candidates or those developed by our collaborator can be commercialized, the key patent may have expired or may only continue to remain in force for a short period following commercialization, thereby reducing the usefulness of the patent.

We seek to protect our proprietary technology and processes, in part, by confidentiality agreements with our employees, consultants, scientific advisors and other contractors. These agreements may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our employees, consultants or contractors use technology or know-how owned by others in their work for us, disputes may arise as to the rights in related inventions. For this and more comprehensive risks related to our intellectual property, see “Risk Factors—Risks Related to Our Intellectual Property.”

Employees

As of August 1, 2018, we had 156 employees. Approximately 128 employees are engaged in research and development, and the others are engaged in business development, finance and other administrative functions.

Facilities

We lease and occupy approximately 122,000 square feet of laboratory and office space in South San Francisco, California. The lease is scheduled to expire in December 2023. We believe that our current spaces are adequate for our needs. We also believe we will be able to obtain additional space, as needed, on commercially reasonable terms.

Legal Proceedings

We are currently not a party to any material legal proceedings.

MANAGEMENT

Directors and Executive Officers

The following table sets forth the name, age and position of each of our directors and executive officers as of August 10, 2018.

NAME	AGE	POSITION
Executive Officers		
William J. Rieflin	58	Chief Executive Officer and Director
Jin-Long Chen, Ph.D.	55	Founder, Chief Scientific Officer and Director
Jeffrey D. Jonker	46	President
Aetna Wun Trombley, Ph.D.	39	Chief Operating Officer
David J. Woodhouse, Ph.D.	48	Chief Financial Officer
Non-Employee Directors		
David V. Goeddel, Ph.D.(3)	67	Chairman of the Board of Directors
Suzanne Sawochka Hooper(1)(3)	52	Director
Mark Leschly(1)	49	Director
David Schnell, M.D.(2)	57	Director
Peter Svennilson	56	Director
McHenry T. Tichenor, Jr.(1)(2)	63	Director

(1) Member of the Audit Committee.
(2) Member of the Compensation Committee.
(3) Member of the Nominating and Corporate Governance Committee.

Executive Officers

William J. Rieflin has served as our Chief Executive Officer and a member of our board of directors since September 2010. From 2004 until 2010, he served as President of XenoPort, Inc., a biotechnology company focused on the discovery and development of transported prodrugs. From 1996 to 2004, he held various positions with Tularik, a biotechnology company focused on the discovery and development of product candidates based on the regulation of gene expression that was acquired by Amgen in 2004, most recently serving as Executive Vice President, Administration, Chief Financial Officer, General Counsel and Secretary. Mr. Rieflin has served as a director at FLX Bio, Inc. since 2015 and Kallyope Inc. since 2016. Mr. Rieflin received a B.S. from Cornell University, an M.B.A. from the University of Chicago Graduate School of Business and a J.D. from Stanford Law School. We believe that Mr. Rieflin's extensive experience with us, which is a consequence of his tenure as Chief Executive Officer, brings necessary historic knowledge and continuity to our board of directors. In addition, we believe his experiences prior to joining us provided him with operational and industry expertise that are important to our board of directors.

Jin-Long Chen, Ph.D., our founder, has served as a member of our board of directors and as our Chief Scientific Officer since January 2008. From 2004 to 2008, Dr. Chen held various positions at Amgen, most recently as its Vice President, Metabolic Research. Prior to joining Amgen, Dr. Chen was Vice President, Biology at Tularik. He has served as a director of Tenaya Therapeutics, Inc. since 2016. Dr. Chen received a B.S. from Fu-Jen Catholic University, an M.S. from National Taiwan University and a Ph.D. from the University of California, Berkeley. We believe that Dr. Chen's extensive experience with us, which is a consequence of his long tenure as Chief Scientific Officer, brings necessary historic knowledge and continuity to our board of directors. In addition, we believe that his experiences prior to joining us provided him with operational and industry expertise that are important to our board of directors.

Jeffrey D. Jonker has served as our President since November 2014. Mr. Jonker served as Senior Vice President, Corporate and Business Development at Theravance Biopharma from June 2014 to November 2014, following the spin-off of Theravance Biopharma from Theravance, Inc. He was Senior Vice President, Corporate Business Development at Theravance, Inc. from October 2013 to June 2014. Prior to that, Mr. Jonker served as Chief Business Officer of Satori Pharmaceuticals from 2010 to 2013. Previously, he held senior business development and corporate strategy positions with Gloucester Pharmaceuticals and Genentech. Prior to Genentech, Mr. Jonker was an attorney in the Technology Transactions Group of Wilson Sonsini Goodrich & Rosati, P.C., representing clients in the biotechnology, life sciences and high tech industries. Mr. Jonker holds a B.A. from Claremont McKenna College, an M.Litt. from the University of St. Andrews and a J.D. from Columbia University School of Law.

Aetna Wun Trombley, Ph.D., has served as our Chief Operating Officer since June 2015. Prior to that, Dr. Trombley was our Vice President and Executive Director, Business Development between September 2011 and June 2015. She was most recently at Novartis in Basel, Switzerland, where she was Chief of Staff for the Chief Executive Officer and worked on key corporate initiatives and strategic projects across the company's healthcare businesses. Earlier in her career, Dr. Trombley worked at XenoPort, Inc., and at McKinsey & Company, where she advised pharmaceutical and medical device clients on strategic, commercial and operational issues. Dr. Trombley has served as a director of Carmot Therapeutics, Inc. since 2016. She received a B.S. in Chemistry from the University of California, San Diego and a Ph.D. in Chemistry from MIT.

David J. Woodhouse, Ph.D. has served as our Chief Financial Officer since March 2015. From 2002 to 2015, he was an investment banker at Goldman Sachs & Co. LLC, most recently as a Managing Director in the healthcare investment banking group and co-head of biotechnology investment banking. Earlier in his career, Dr. Woodhouse worked at Dynavax Technologies and also as a research assistant at Amgen, Inc. Dr. Woodhouse received a B.A. in pharmacology from the University of California, Santa Barbara, an M.B.A. from the Tuck School of Business at Dartmouth and a Ph.D. in molecular pharmacology from Stanford University School of Medicine.

Directors

David V. Goeddel, Ph.D. has served as chairman of our board of directors since January 2008 and served as our Chief Executive Officer from 2008 to 2010. Dr. Goeddel has been a Managing Partner of The Column Group, or TCG, a venture capital partnership, since 2007. Dr. Goeddel co-founded Tularik in November 1991, was Vice President of Research until 1996 and Chief Executive Officer from 1996 through 2004. He served as Amgen's first Senior Scientific Vice President until May 2006. Prior to Tularik, he was the first scientist hired by Genentech, and from 1978 to 1993 served in various positions, including Fellow, Staff Scientist and Director of Molecular Biology. He is a member of the National Academy of Sciences and the American Academy of Arts and Sciences. Dr. Goeddel received a B.S. in Chemistry from the University of California, San Diego and a Ph.D. from the University of Colorado. We believe that Dr. Goeddel's scientific background, experience in the venture capital industry, experience serving as a director of other publicly traded and privately held life science companies and experience in founding and serving as President and Chief Executive Officer of a public biopharmaceutical company give him the qualifications, skills and financial expertise to serve on our board of directors.

Suzanne Sawochka Hooper has served as a member of our board of directors since August 2018. Since March 2012, Ms. Hooper has served as the Executive Vice President and General Counsel of Jazz Pharmaceuticals plc. From 1999 until February 2012, she was a partner in the law firm Cooley LLP. Ms. Hooper received a J.D. from the University of California, Berkeley, Boalt Hall School of Law and a B.A. in Political Science from the University of California, Santa Barbara. Ms. Hooper is a

member of the State Bar of California. We believe Ms. Hooper's legal and operational background and executive experience make her qualified to serve on our board of directors. In addition, Ms. Hooper's experience as the executive vice president of a publicly traded pharmaceutical company provided her with operational expertise that is important to our board of directors.

Mark Leschly has served as a member of our board of directors since January 2008. Since 2017, Mr. Leschly has been the Chairman and CEO of Universal Tennis, LLC, which is the developer of a software platform for tennis analytics and tournament management. Since 2014, Mr. Leschly has also been the owner and managing member of Iconica LLC, which primarily focuses on investments at the intersection of sports, media and technology. From 2002 to 2016, he was a member of the Board of Directors of Anacor Pharmaceuticals, Inc. Mr. Leschly also serves on the board of a number of private companies. Mr. Leschly received an A.B. from Harvard University and an M.B.A. from the Stanford Graduate School of Business. We believe that Mr. Leschly's experience in venture capital and in investing in life sciences companies is valuable to our board of directors. In addition, we believe that Mr. Leschly's prior service on several public company boards has given him experience in corporate governance matters, which is valuable in his position as a director.

David Schnell, M.D. has served as a member of our board of directors since January 2008. Dr. Schnell co-founded and has been a Managing Director at Prospect Venture Partners since 1997. Prior to that, Dr. Schnell served as a Partner at Kleiner Perkins Caufield & Byers, a venture capital firm. Dr. Schnell has led private investments for and served on the board of directors of numerous public and private companies. Dr. Schnell previously served on the board of directors of Amira Pharmaceuticals, Inc. (acquired by Bristol-Myers Squibb), Gloucester Pharmaceuticals (acquired by Celgene Corporation), Kythera Biopharmaceuticals, Inc. (acquired by Allergan plc) and Rinat Neuroscience Corporation (acquired by Pfizer), among others. Dr. Schnell received a B.S. in Biological Sciences from Stanford University, an M.A. in Health Services Research from Stanford University School of Medicine, and an M.D. from Harvard Medical School. We believe Dr. Schnell's medical background, venture and executive experience and numerous directorships make him qualified to serve on our board of directors. In addition, Dr. Schnell brings insight on compensation-related matters to the compensation committee based on his breadth of exposure to emerging and public companies.

Peter Svennilson has served as a member of our board of directors since January 2008. He founded and has been a Managing Partner of TCG since 2007. He also currently serves on the boards of Immune Design Corp., Constellation Pharmaceuticals, Inc., Gritstone Oncology, Inc., ORIC Pharmaceuticals, Inc. and Ribon Therapeutics, Inc. He was the Chairman of Aragon Pharmaceuticals before it was sold to Johnson & Johnson in 2013 and was the Chairman of Seragon Pharmaceuticals, Inc. until it was sold to Genentech, Inc./F. Hoffman-La Roche AG in 2014. Mr. Svennilson was also a former director of PTC Therapeutics, Inc. Prior to TCG, he founded Three Crowns Capital and was a Managing Partner from 1996 to 2007. Prior to Three Crowns Capital, he was an Associate Managing Director at Nomura Securities from 1987 to 1993. Mr. Svennilson is currently a trustee for The Institute for Advanced Study in Princeton, New Jersey. Mr. Svennilson received an M.B.A. from the Stockholm School of Economics and Finance. We believe that Mr. Svennilson's experience in venture capital and in fund raising for life sciences companies makes him qualified to serve on our board of directors.

McHenry T. Tichenor, Jr. has served as a member of our board of directors since March 2010. He has also served as the President of Tichenor Ventures, LLC since January 2010 and held a board observer role at Peloton Therapeutics, Inc. since October 2012. He served as a director of Belo Corp. from 2009 to 2013. Mr. Tichenor served as President, Chief Executive Officer and Director of Tichenor Media System, Inc. from 1981 to 1997, which he subsequently merged with the Hispanic Broadcasting Corporation and, ultimately, with Univision Communications. Mr. Tichenor currently serves as the Executive Director of WWWW Foundation, Inc., a non-profit organization devoted, in part, to cancer research. From 2010 to 2018, Mr. Tichenor served as Board Chairman of the Sarcoma Alliance for

Research through Collaboration, a non-profit sponsor of clinical trials for the prevention, treatment and cure of sarcomas. Mr. Tichenor earned a B.A. with Honors in Plan II and an M.B.A. from The University of Texas at Austin, and an M.S. in biotechnology from The University of Texas at Dallas. We believe Mr. Tichenor's financial and scientific background, venture and executive experience, and multiple directorships make him qualified to serve on our board of directors. In addition, Mr. Tichenor's experience as the chief executive officer of a publicly traded company provided him with operational expertise that is important to our board of directors.

Composition of the Board of Directors

Our amended and restated bylaws provide that the size of our board of directors will be determined from time to time by resolution of our board of directors. Our board of directors currently consists of eight directors, six of whom qualify as independent directors under the rules and regulations of the Securities and Exchange Commission, or SEC, and Nasdaq Stock Market, LLC, or Nasdaq.

Election of Directors

Upon the completion of this offering, our amended and restated certificate of incorporation will provide for a classified board of directors consisting of three classes of directors. We will have three directors in each of Class I and Class II and two directors in Class III, each serving a staggered three-year term. At each annual meeting of stockholders, our stockholders will elect successors to directors whose terms then expire to serve from the time of election and qualification until the third annual meeting following election. After the completion of this offering, our directors will be divided among the three classes as follows:

- Class I directors will be Mark Leschly, William J. Rieflin and Peter Svennilson, and their terms will expire at the annual meeting of stockholders to be held in ;
- Class II directors will be Jin-Long Chen, David Schnell and McHenry T. Tichenor, Jr., and their terms will expire at the annual meeting of stockholders to be held in ; and
- Class III directors will be David V. Goeddel and Suzanne Sawochka Hooper, and their terms will expire at the annual meeting of stockholders to be held in .

The classification of our board of directors may have the effect of delaying or preventing changes in control of our company. We expect that additional directorships resulting from an increase in the number of directors, if any, will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors.

Independence of the Board of Directors and Board Committees

Upon the completion of this offering, we anticipate that our common stock will be listed on the Nasdaq Global Market. Rule 5605 of the Nasdaq Marketplace Rules, or the Nasdaq Listing Rules, requires that independent directors compose a majority of a listed company's board of directors within one year of listing. In addition, the Nasdaq Listing Rules require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and corporate governance committees be independent and that audit committee members also satisfy independence criteria set forth in Rule 10A-3 under the Exchange Act. Under Nasdaq Listing Rule 5605(a)(2), a director will only qualify as an "independent director" if, in the opinion of our board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In order to be considered independent for purposes of Rule 10A-3 under the Exchange Act, a member of an audit committee of a listed company may not, other than in his or

her capacity as a member of the audit committee, the board of directors or any other board committee: (1) accept, directly or indirectly, any consulting, advisory or other compensatory fee from the listed company or any of its subsidiaries; or (2) be an affiliated person of the listed company or any of its subsidiaries. In addition to satisfying general independence requirements under the Nasdaq Listing Rules, members of the compensation committee must also satisfy additional independence requirements set forth in Nasdaq Listing Rule 5605(d)(2). In order to be considered independent for purposes of Nasdaq Listing Rule 5605(d)(2), a member of a compensation committee of a listed company may not, other than in his or her capacity as a member of the compensation committee, the board of directors or any other board committee, accept, directly or indirectly, any consulting, advisory or other compensatory fee from the listed company or any of its subsidiaries. Additionally, the board of directors of the listed company must consider whether the compensation committee member is an affiliated person of the listed company or any of its subsidiaries and, if so, must determine whether such affiliation would impair the director's judgment as a member of the compensation committee.

In 2018, our board of directors undertook a review of the composition of our board of directors and its committees and the independence of each director. Based upon information requested from and provided by each director concerning his or her background, employment and affiliations, including family and other relationships, including those relationships described under "Certain Relationships and Related Person Transactions," our board of directors determined that none of Drs. Goeddel and Schnell, Messrs. Leschly, Svennilson and Tichenor and Ms. Hooper, representing six of our eight directors, has a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is "independent" as that term is defined under Rule 5605(a)(2) of the Nasdaq Listing Rules. Mr. Rieflin is not considered independent because he currently serves as our Chief Executive Officer. Dr. Chen is not considered independent because he currently serves as our Chief Scientific Officer. Our board of directors also determined that each member of the audit, compensation and nominating and corporate governance committees satisfies the independence standards for such committees established by the SEC and the Nasdaq Listing Rules, as applicable. In making these determinations on the independence of our directors, our board of directors considered the relationships that each such non-employee director has with our company and all other facts and circumstances our board of directors deemed relevant in determining independence, including the beneficial ownership of our capital stock by each non-employee director.

Board Leadership Structure and the Role of the Board in Risk Oversight

Board Leadership Structure

The positions of our chairman of the board and chief executive officer are separated. Separating these positions allows our chief executive officer to focus on our day-to-day business, while allowing the chairman of the board to lead our board of directors in its fundamental role of providing advice to and independent oversight of management. Our board of directors recognizes the time, effort and energy that the chief executive officer must devote to his position in the current business environment, as well as the commitment required to serve as our chairman, particularly as our board of directors' oversight responsibilities continue to grow. Our board of directors also believes that this structure ensures a greater role for the independent directors in the oversight of the company and active participation of the independent directors in setting agendas and establishing priorities and procedures for the work of our board of directors.

Although our amended and restated bylaws that will be in effect upon the completion of this offering will not require that we separate the chairman of the board and chief executive officer positions, our board of directors believes that having separate positions is the appropriate leadership structure for us at this time. Our board of directors recognizes that, depending on the circumstances,

other leadership models, such as combining the role of executive chairman of the board with the role of chief executive officer, might be appropriate. Accordingly, our board of directors may periodically review its leadership structure. Our board of directors believes its administration of its risk oversight function has not affected its leadership structure.

We anticipate that our independent directors will meet alone in executive session at no less than four regular meetings of our board of directors each year. The chairman of our board may call additional executive sessions of the independent directors at any time, and the chairman of our board shall call an executive session at the request of a majority of the independent directors. The purpose of these executive sessions is to promote open and candid discussion among non-employee directors.

Role of the Board in Risk Oversight

We face a number of risks, including those described under the section titled “Risk Factors” included elsewhere in this prospectus. Our board of directors believes that risk management is an important part of establishing, updating and executing on the company’s business strategy. Our board of directors, as a whole and at the committee level, has oversight responsibility relating to risks that could affect the corporate strategy, business objectives, compliance, operations and the financial condition and performance of the company. Our board of directors focuses its oversight on the most significant risks facing the company and on its processes to identify, prioritize, assess, manage and mitigate those risks. Our board of directors and its committees receive regular reports from members of the company’s senior management on areas of material risk to the company, including strategic, operational, financial, legal and regulatory risks. While our board of directors has an oversight role, management is principally tasked with direct responsibility for management and assessment of risks and the implementation of processes and controls to mitigate their effects on the company.

The audit committee, as part of its responsibilities, oversees the management of financial risks, including accounting matters, liquidity and credit risks, corporate tax positions, insurance coverage and cash investment strategy and results. The audit committee is also responsible for overseeing the management of risks relating to the performance of our internal audit function, if required, and our independent registered public accounting firm, as well as our system of internal control and disclosure controls and procedures. The compensation committee is responsible for overseeing the management of risks relating to our executive compensation and overall compensation and benefit strategies, plans, arrangements, practices and policies. The nominating and corporate governance committee oversees the management of risks associated with our overall compliance and corporate governance practices and the independence and composition of our board of directors. These committees provide regular reports, on at least a quarterly basis, to the full board of directors.

Committees of the Board

Our board of directors has a standing audit committee, compensation committee and nominating and corporate governance committee. The composition and responsibilities of each committee are described below. Members serve on these committees until their resignation or until otherwise determined by our board of directors.

Audit Committee

The audit committee is responsible for assisting our board of directors in its oversight of the integrity of our financial statements, the qualifications and independence of our independent registered public accounting firm and our internal financial and accounting controls. The audit committee has direct responsibility for the appointment, compensation, retention (including termination) and oversight

of our independent registered public accounting firm, and our independent registered public accounting firm reports directly to the audit committee. The audit committee also prepares the audit committee report that the SEC requires to be included in our annual proxy statement.

The members of the audit committee are Messrs. Leschly and Tichenor and Ms. Hooper, and Mr. Tichenor serves as chair of the audit committee. All members of the audit committee qualify as an independent director under the corporate governance standards of the Nasdaq Listing Rules and the independence requirements of Rule 10A-3 of the Exchange Act. Our board of directors has determined that Mr. Tichenor qualifies as an "audit committee financial expert" as such term is currently defined in Item 407(d)(5) of Regulation S-K. The audit committee has adopted a written charter that satisfies the applicable standards of the SEC and the Nasdaq Listing Rules, which we will post on our website upon completion of this offering.

Compensation Committee

The compensation committee approves the compensation objectives for the company, approves the compensation of the chief executive officer and approves or recommends to our board of directors for approval the compensation for other executives. The compensation committee reviews all compensation components, including base salary, bonus, benefits and other perquisites.

The members of the compensation committee are Dr. Schnell and Mr. Tichenor, and Dr. Schnell serves as chair of the compensation committee. Each member of the compensation committee is a non-employee director within the meaning of Rule 16b-3 of the rules promulgated under the Exchange Act and each is an independent director as defined by the Nasdaq Listing Rules, including Nasdaq Listing Rule 5605(d)(2). The compensation committee has adopted a written charter that satisfies the applicable standards of the SEC and the Nasdaq Listing Rules, which we will post on our website upon completion of this offering.

Nominating and Corporate Governance Committee

The nominating and corporate governance committee is responsible for making recommendations to our board of directors regarding candidates for directorships and the structure and composition of our board and the board committees. In addition, the nominating and corporate governance committee is responsible for developing and recommending to our board corporate governance guidelines applicable to the company and advising our board on corporate governance matters.

The members of the nominating and corporate governance committee are Dr. Goeddel and Ms. Hooper, and Dr. Goeddel serves as chair of the nominating and corporate governance committee. Each member of the nominating and corporate governance committee is a non-employee director within the meaning of Rule 16b-3 of the rules promulgated under the Exchange Act and an independent director as defined by the Nasdaq Listing Rules. The nominating and corporate governance committee has adopted a written charter that satisfies the applicable standards of the Nasdaq Listing Rules, which we will post on our website upon completion of this offering.

Code of Business Conduct and Ethics

We adopted a code of business conduct and ethics that applies to all of our employees, officers and directors including those officers responsible for financial reporting. Upon completion of this offering, we will post the code of business conduct and ethics on our website. We intend to disclose future amendments to the code or any waivers of its requirements on our website to the extent permitted by the applicable rules and exchange requirements.

Compensation Committee Interlocks and Insider Participation

None of the members of our compensation committee have ever been officers or employees of the company. None of our executive officers serves, or has served during the last three years, as a member of the board of directors, compensation committee or other board committee performing equivalent functions of any entity that has one or more executive officers serving as one of our directors or on our compensation committee.

EXECUTIVE AND DIRECTOR COMPENSATION

Executive Compensation

The following table provides information regarding the compensation of our principal executive officer and each of our two other most highly compensated executive officers during the fiscal year ended December 31, 2017. Throughout this prospectus we refer to these executive officers as our named executive officers.

Summary Compensation Table

Name and Principal Position	Salary ($)	Option Awards ($)(1)	Non-Equity Incentive Plan Compensation ($)(2)	All Other Compensation ($)(3)	Total ($)
William J. Rieflin *Chief Executive Officer*	545,000	1,199,498	65,400	—	1,809,898
Jin-Long Chen, Ph.D. *Founder and Chief Scientific Officer*	460,000	1,136,366	55,200	750	1,652,316
Jeffrey D. Jonker *President*	405,000	694,446	48,600	750	1,148,796

(1) Amounts reflect the grant date fair value of option awards granted in 2017 measured pursuant to Financial Accounting Standard Board Accounting Standard Codification, Topic 718. For information regarding assumptions underlying the value of equity awards, see Note 2 to our consolidated financial statements and the discussion under “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies and Estimates—Stock-Based Compensation,” included elsewhere in this prospectus. These amounts do not reflect actual value that the named executive officers may realize.

(2) Amounts represent the annual performance-based cash bonuses earned by our named executive officers based on the achievement of certain corporate performance objectives and individual performance during 2017. These amounts were paid to the named executive officers in early 2018. Please see the descriptions of the annual performance bonuses paid to our named executive officers under “2017 Performance Bonuses” below.

(3) Amounts shown in this column represent defined contribution retirement matching contributions provided to the named executive officers on the same terms as provided to all of our regular full-time employees in the United States. For more information regarding these benefits, see below under “—401(k) Plan and Matching Plan.”

Narrative to Summary Compensation Table

2017 Performance Bonuses

We maintain an annual performance-based cash bonus program in which each of our named executive officers participated in 2017. Each of our named executive officers’ target bonus is expressed as a percentage of base salary that can be achieved by meeting corporate goals at target level. The 2017 annual bonuses for each of our named executive officers were targeted at 12% of their respective base salaries. The target bonuses of each of our named executive officers remained unchanged from their respective levels in 2016. Pursuant to the bonus program, we expect the same target bonuses for each of these officers in 2018 as in 2017.

For 2017, our named executive officers were eligible to earn annual cash bonuses based on the achievement of certain corporate performance objectives approved by the compensation committee

and our board of directors, as well as individual performance. For 2017, our board of directors set corporate performance goals in the three broad strategic areas of advancing therapeutic programs through development, discovering new molecules through an active research program and building capability. Each area included specific performance objectives.

In early 2018, the compensation committee reviewed and approved the achievement of our 2017 corporate goals and determined that the corporate goals were met. Based on this level of corporate achievement, the bonus pool for the company was fully funded.

Equity Compensation

Each of our named executive officers currently hold options or restricted stock. In 2017, Dr. Chen and Messrs. Jonker and Rieflin were granted options to purchase our common stock, in each case, pursuant to our 2008 Equity Incentive Plan.

In January 2017, our board of directors granted to Dr. Chen and Messrs. Jonker and Rieflin options to purchase 450,000, 275,000 and 475,000 shares of our common stock, respectively, which vest as to 1/48th of the shares subject to the option each month from January 1, 2017, subject to each executive officer's continued service to us on each applicable vesting date. In addition, the options granted to Messrs. Jonker and Rieflin are subject to the accelerated vesting provisions set forth in their respective employment agreement, as described below under "Other Elements of Compensation—Potential Payments Upon Termination or Change of Control."

We intend to amend and restate our 2018 Equity Incentive Plan, or the Restated 2018 Plan, to facilitate the grant of cash and equity incentives to directors, employees (including our named executive officers) and consultants and to enable us to obtain and retain services of these individuals, which is essential to our long-term success. We expect that the Restated 2018 Plan will become effective immediately prior to the completion of this offering, subject to approval of such plan by our stockholders. For additional information about the Restated 2018 Plan, please see the section titled "Equity Incentive Plans" below.

Outstanding Equity Awards at Fiscal Year-End

The following table provides information regarding equity awards held by the named executive officers that were outstanding as of December 31, 2017.

		Option Awards(1)				Stock Awards	
Name	Grant Date	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock (#) That Have Not Vested	Market Value of Shares or Units of Stock That Have Not Vested ($) (2)
William J. Rieflin	1/24/2014(3)	—	—	—	—	8,334	33,919
	9/9/2015(4)	—	—	—	—	93,750	381,563
	1/31/2015(5)	—	—	—	—	115,105	468,477
	1/27/2016	475,000	—	3.82	1/26/2026	—	—
	1/20/2017	475,000	—	3.85	1/19/2027	—	—
Jin-Long Chen, Ph.D.	2/25/2010	300,000	—	0.26	2/24/2020	—	—
	2/11/2011	300,000	—	0.30	2/10/2021	—	—
	3/2/2012	325,000	—	0.72	3/1/2022	—	—
	1/24/2013	350,000	—	0.72	1/23/2023	—	—
	1/24/2014	350,000	—	1.08	1/23/2024	—	—
	1/31/2015	400,000	—	2.00	1/30/2025	—	—
	1/27/2016	450,000	—	3.82	1/26/2026	—	—
	1/20/2017	450,000	—	3.85	1/19/2027	—	—
Jeffrey D. Jonker	12/18/2014	425,000	—	2.00	12/17/2024	—	—
	1/27/2016	150,000	—	3.82	1/26/2026	—	—
	1/20/2017	275,000	—	3.85	1/19/2027	—	—

(1) Unless otherwise noted, shares subject to the options vest on a monthly basis upon the vesting commencement date over 48 months, subject to the continued service with us through each vesting date. The options are subject to an early exercise right and may be exercised in full prior to the vesting of the shares underlying the stock option.

(2) Because our common stock was not traded on a public market on December 31, 2017, the market value has been calculated based on an assumed fair market value of our common stock of $4.07 per share as of December 31, 2017. See the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies and Estimates—Stock-Based Compensation.”

(3) Reflects the unvested portion of an early exercise for 400,000 shares of common stock granted on January 24, 2014. Our right to repurchase the unvested shares lapse in equal increments on a monthly basis through December 31, 2017.

(4) Reflects the unvested portion of an early exercise for 500,000 shares of common stock granted on September 9, 2014. Our right to repurchase the unvested shares lapse in equal increments on a monthly basis through September 8, 2018.

(5) Reflects the unvested portion of an early exercise for 425,000 shares of common stock granted on January 31, 2015. Our right to repurchase the unvested shares lapse in equal increments on a monthly basis through December 31, 2018.

Other Elements of Compensation

Health, Welfare and Retirement Benefits

Our named executive officers are eligible to participate in all of our employee benefit plans, such as medical, dental, vision, group life, short and long-term disability plans, in each case on the same basis as other employees, subject to applicable laws. We provide a 401(k) plan and a matching plan to our employees, including our named executive officers, as discussed in the section below titled “—401(k) Plan and Matching Plan.” We also provide vacation and other paid holidays to all employees, including our named executive officers. We do not provide a pension plan for our employees, and none of our named executive officers participated in a nonqualified deferred compensation plan in 2017.

401(k) Plan and Matching Plan

We maintain a defined contribution employee retirement plan for our employees. Our 401(k) plan is intended to qualify as a tax-qualified plan under Section 401 of the Code so that contributions to our 401(k) plan and income earned on such contributions are not taxable to participants until withdrawn or distributed from the 401(k) plan. Our 401(k) plan provides that each participant may contribute up to 100% of his or her pre-tax compensation, up to a statutory limit of $18,500 for 2018. Participants who are at least 50 years old can also make “catch-up” contributions, which in 2018 may be up to an additional $6,000 above the statutory limit. Under our 401(k) plan, each employee is fully vested in his or her deferred salary contributions. Employee contributions are held and invested by the plan’s trustee. Our 401(k) plan also permits us to make discretionary and matching contributions, subject to established limits and a vesting schedule.

Our NGM Biopharmaceuticals Matching Plan, or our 401(k) Matching Plan, effective January 1, 2011, is intended to be a tax-qualified defined contribution plan under Subsections 401(a) and 401(m) of the Code. All employees are eligible to participate and may enter the 401(k) Matching Plan as of the date they become eligible to participate in the 401(k) plan. Each participant who makes pre-tax contributions to the 401(k) plan is eligible to have a matching contribution in our common stock made by us to his or her 401(k) Matching Plan account, which is generally equal to 50% of the participant’s plan contribution, up to a maximum employer contribution of $1,500 per year. We may make additional discretionary contributions for all participants to the 401(k) plan. Each participant’s contributions, and the corresponding investment earnings, are generally not taxable to the participants until withdrawn. Participant contributions are held in trust as required by law. Individual participants may direct the trustee to invest their accounts in authorized investment alternatives.

Perquisites and Other Personal Benefits

We do not provide perquisites or other personal benefits to our named executive officers.

No Tax Gross-Ups

In 2017, we did not make gross-up payments to cover our named executive officers’ personal income taxes that pertained to any of the compensation or perquisites paid or provided by our company.

Agreements with our Named Executive Officers

Offer Letters or Employment Agreements. We have entered into offer letters or employment agreements with all of our named executive officers. We designed these agreements to be part of a competitive compensation package and to keep our named executive officers focused on our business goals and objectives. These agreements provide for base salaries and incentive compensation, and each component reflects the scope of each named executive officer’s anticipated responsibilities and the individual experience they bring to the company. Each named executive officer is also eligible to participate in our employee benefit plans on the same terms as other regular, full-time employees. The employment of each of our named executive officers is “at will” and may be terminated at any time. In addition, each of our named executive officers has executed a form of our standard proprietary information and inventions agreement. The key terms of the offer letters are described below.

We entered into an employment agreement with Mr. Rieflin effective as of September 30, 2010, for the position of Chief Executive Officer. Pursuant to Mr. Rieflin’s employment agreement, we agreed to an initial annual base salary of $400,000 and a hiring bonus of $100,000. We also agreed to grant to Mr. Rieflin options to purchase shares of our common stock, subject to approval by our board of directors. Mr. Rieflin’s annual base salary was increased from $545,000 to $575,000 effective January 1, 2018.

We entered into an employment offer letter with Dr. Chen on January 7, 2008, for the position of President and Chief Scientific Officer. Dr. Chen resigned from his position as President on October 31, 2014, but remained as Chief Scientific Officer. Pursuant to Dr. Chen's employment offer letter, we agreed to an initial annual base salary of $300,000 and a hiring bonus of $50,000. We also agreed to grant to Dr. Chen founder's shares of our common stock, subject to approval by our board of directors. Dr. Chen's annual base salary was increased from $460,000 to $485,000 effective January 1, 2018.

We entered into an employment agreement with Mr. Jonker effective as of November 17, 2014, for the position of President. Pursuant to Mr. Jonker's employment agreement, Mr. Jonker's initial annual base salary was $375,000. We also agreed to grant to Mr. Jonker options to purchase shares of our common stock, subject to approval by our board of directors. Mr. Jonker's annual base salary was increased from $405,000 to $430,000 effective January 1, 2018.

Potential Payments Upon Termination or Change of Control

The employment agreements with Messrs. Rieflin and Jonker described above under "—Agreements with our Named Executive Officers" contain severance benefits. These severance benefits provide that, in the event we terminate the executive's employment without "cause," or he resigns for "good reason," each as defined in the employment agreement, on or within 18 months following a change in control of the company, the named executive officer will be entitled to receive the severance benefits described below. These severance benefits are subject to the named executive officer executing a general release of claims in favor of us, and complying with his obligations under the proprietary information and inventions agreement entered into with us.

William J. Rieflin. In the event of a qualifying termination following a change in control, Mr. Rieflin will be entitled to: (i) payments equal to 12 months of his base salary, as in effect on the date of his termination payable in substantially equal installments in accordance with our normal payroll policies then in effect, less applicable withholdings, with such installments to commence on the first payroll period following the later of the date of his termination and the effective date of his general release of claims; (ii) acceleration of any unvested shares subject to outstanding equity awards held by Mr. Rieflin on the date of his termination; and (iii) if elected by Mr. Rieflin, payment or reimbursement of COBRA premiums through the earlier of 12 months from his termination date or the date he and his covered dependents, if any, cease to be eligible for such continued coverage.

In addition, Mr. Rieflin's employment agreement provides that in the event that the severance and other benefits provided for or otherwise payable to him constitute "parachute payments" within the meaning of Section 280G of the Code and are subject to the excise tax imposed by Section 4999 of the Code, and either the holders of at least 75% of the voting power of our capital stock as of September 30, 2010 do not still hold at least 75% of such voting power at the time of any proposed stockholder vote to approve parachute payments, or our board of directors does not recommend approval of such parachute payments, then Mr. Rieflin may be entitled to receive an additional tax gross-up payment with respect to such federal excise tax obligations. Our obligation to provide such tax gross-up payment will be terminated once we are a reporting company under the Exchange Act.

Jeffrey D. Jonker. In the event of a qualifying termination following a change in control, Mr. Jonker will be entitled to: (i) payments equal to nine months of his base salary, as in effect on the date of his termination payable in substantially equal installments in accordance with our normal payroll policies then in effect, less applicable withholdings, with such installments to commence on the first payroll period following the later of the date of his termination and the effective date of his general release of claims; (ii) acceleration of any unvested shares subject to outstanding equity awards held by Mr. Jonker on the date of his termination; and (iii) if elected by Mr. Jonker, payment or reimbursement of COBRA premiums through the earlier of 12 months from his termination date or the date he and his covered dependents, if any, cease to be eligible for such continued coverage.

Equity Incentive Plans

The principal features of our equity incentive plans are summarized below. These summaries are qualified in their entirety by reference to the actual text of the plans, which are filed as exhibits to the registration statement of which this prospectus is a part.

Amended and Restated 2018 Equity Incentive Plan

In January 2018 our board of directors adopted, and in May 2018, our stockholders approved, our 2018 Plan. We expect our board of directors and our stockholders to approve the amendment and restatement of our 2018 Plan, or the Restated 2018 Plan, prior to the completion of this offering in anticipation of becoming a publicly traded company, which will become effective upon the completion of this offering.

Types of Awards; Eligibility

The Restated 2018 Plan provides for the grant of incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance-based stock awards, and other forms of equity-based awards, all of which may be granted to employees, including officers, non-employee directors and consultants of us and our affiliates. Incentive stock options may be granted only to employees. All other awards may be granted to employees, including officers, and to non-employee directors and consultants.

Share Reserve

Initially, we have reserved shares of our common stock for issuance pursuant to the Restated 2018 Plan, subject to certain adjustments set forth in the plan. In addition, any shares of common stock subject to awards outstanding under the 2008 Plan that terminate by expiration, forfeiture, cancellation or otherwise without the issuance of such shares, up to a maximum of 16,883,569 shares, are added to 2018 Plan share reserve.

The number of shares available for issuance under the Restated 2018 Plan will automatically increase on January 1st of each calendar year for ten years, starting on January 1, 2019 (assuming the Restated 2018 Plan becomes effective in calendar year 2018) and ending on and including January 1, 2028, in an amount equal to % of the total number of issued and outstanding shares of our common stock as of December 31 of the immediately preceding year, or a lesser number of shares determined by our board of directors. The maximum number of shares of our common stock that may be issued upon the exercise of incentive stock options under our Restated 2018 Plan is shares.

Shares subject to awards granted under our Restated 2018 Plan that expire or terminate without being exercised in full, or that are paid out in cash rather than in shares, do not reduce the number of shares available for issuance under our Restated 2018 Plan. Additionally, shares become available for future grant under our Restated 2018 Plan if they were issued under our Restated 2018 Plan and we repurchase them or they are forfeited because they fail to vest. Shares used to pay the exercise price of a stock award or to satisfy the tax withholding obligations related to an award are also returned to the Restated 2018 Plan and become available for future grant. Shares issued under the Restated 2018 Plan may be previously unissued shares or reacquired shares bought by us on the open market.

As of June 30, 2018, options to purchase a total of 3,078,466 shares of common stock at a weighted average exercise price of $4.07 were issued and outstanding under the 2018 Plan and zero shares of common stock had been issued upon the exercise of options or pursuant to other awards granted under the 2018 Plan.

Administration

Our board of directors, or a duly authorized committee thereof, has the authority to administer the Restated 2018 Plan. Our board has delegated concurrent authority to administer our Restated 2018 Plan to the compensation committee under the terms of the compensation committee's charter. Our board of directors may also delegate to one or more of our officers the authority to designate employees (other than other officers) to be recipients of certain awards, and determine the number of shares of common stock to be subject to such awards.

Subject to the terms of the Restated 2018 Plan, the plan administrator has the authority in its discretion to, among other things, select recipients of awards, determine the number of shares, terms and conditions and forms of agreement related to awards, construe and interpret terms of the plan and awards, and prescribe, amend and rescind rules related to the plan. All actions of the plan administrator will be final and binding on all persons.

The plan administrator also has the authority to modify outstanding awards under our Restated 2018 Plan, and to reduce the exercise, purchase or strike price of any outstanding award, cancel any outstanding award in exchange for a new award, cash or other consideration, or take any other action that is treated as a repricing under generally accepted accounting principles, with the consent of any adversely affected participant.

Options

The Restated 2018 Plan authorizes the plan administrator to grant incentive stock options (under Section 421 of the Code) and options that do not qualify as incentive stock options, or nonstatutory stock options. The plan administrator will determine the exercise price of each option, provided that the price generally will be equal to at least 100% of the fair market value of the shares of common stock on the date on which the option is granted. Options granted under the Restated 2018 Plan vest at the rate specified by the plan administrator. Options may have a maximum term of up to 10 years from the date of grant, subject to earlier expiration following the cessation of a participant's continuous service with us, as provided in the 2018 Plan and the specific award agreement.

Tax Limitations On Incentive Stock Options

The aggregate fair market value, determined at the time of grant, of our common stock with respect to incentive stock options that are exercisable for the first time by a participant during any calendar year under all of our stock plans may not exceed $100,000. We will generally treat options or portions thereof that exceed such limit as nonstatutory stock options. No incentive stock option may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant, and (2) the term of the incentive stock option does not exceed five years from the date of grant.

Restricted Stock Awards

A restricted stock award is an award of shares of common stock that may, but need not, be subject to restrictions on transferability and other restrictions as the plan administrator determines in its sole discretion on the date of grant. The restrictions, if any, may lapse over a specified period of time or through the satisfaction of conditions, in installments or otherwise, as the plan administrator may determine. A participant who receives a restricted stock award will have all of the rights of a stockholder as to those shares, including the right to vote and the right to receive dividends or distributions on the shares, except that the board of directors may require any dividends to be

reinvested in shares. During the period, if any, when stock awards are non-transferable or forfeitable, a participant is prohibited from selling, transferring, assigning, pledging or otherwise encumbering or disposing of his or her award shares. Except as otherwise provided in the applicable award agreement, restricted stock awards that have not vested may be forfeited or repurchased by us upon the participant's cessation of continuous service for any reason.

Restricted Stock Units

Restricted stock units represent the participant's right to receive a compensation amount, based on the value of our common stock, if the vesting criteria established by the plan administrator are met. We may issue restricted stock unit awards that settle on vesting in cash, delivery of shares of common stock, a combination of cash and stock, as deemed appropriate by the plan administrator and provided in the restricted stock unit award agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit award. Except as otherwise provided in the applicable award agreement, restricted stock units that have not vested will be forfeited upon the participant's cessation of continuous service for any reason.

Stock Appreciation Rights

Stock appreciation rights provide the participant with the right to receive, upon exercise of the stock appreciation right, cash, shares of common stock or a combination of cash and stock. The plan administrator determines the strike price for a stock appreciation right, which generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Upon the exercise of a stock appreciation right, we will pay the participant an amount equal to the product of (1) the excess of the per share fair market value of our common stock on the date of exercise over the strike price, multiplied by (2) the number of shares of common stock with respect to which the stock appreciation right is exercised. A stock appreciation right granted under the Restated 2018 Plan vests at the rate specified in the stock appreciation right agreement as determined by the plan administrator. Stock appreciation rights may have a maximum term of up to 10 years, subject to earlier expiration following the cessation of a participant's continuous service with us, as provided in the Restated 2018 Plan and the specific award agreement.

Performance Awards

The Restated 2018 Plan permits the grant of awards that vest (or are eligible to vest) in whole or in part upon the achievement of certain pre-established performance goals during a designated performance period.

Other Equity-Based Awards

The plan administrator may grant other types of equity-based awards under the Restated 2018 Plan. Other equity-based awards are payable in cash, shares of common stock or other equity, or a combination thereof, and may be restricted or unrestricted, as determined by the plan administrator. The terms and conditions that apply to other equity-based awards are determined by the plan administrator.

Transferability.

A participant generally may not transfer awards granted under our Restated 2018 Plan other than by will, the laws of descent and distribution, or as otherwise provided under our Restated 2018 Plan.

Changes to Capital Structure

In the event that there is a specified type of change in our capital structure, such as a stock split or recapitalization, appropriate adjustments will be made to (1) the class and maximum number of shares reserved for issuance under the Restated 2018 Plan, (2) the class and maximum number of shares by which the share reserve may increase automatically each year, (3) the class and maximum number of shares that may be issued upon the exercise of incentive stock options, and (4) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards.

Corporate Transaction

Our 2018 Plan provides that in the event of a corporate transaction, the successor corporation may assume each outstanding award or may substitute similar awards for each outstanding award. If outstanding awards are not assumed or substituted, the vesting of such awards held by current service providers will accelerate in full prior to the consummation of the transaction, and any awards not exercised will terminate upon closing of the corporate transaction. In addition, the plan administrator may provide for unexercised awards that will otherwise terminate upon closing of the corporate transaction to be cancelled at closing in exchange for a payment equal in value to the amount such award holder would have received in such transaction upon exercise of the award, minus the exercise price.

Under the Restated 2018 Plan, a corporate transaction is generally the consummation of (1) a sale or other disposition of all or substantially all of our consolidated assets, (2) a sale or other disposition of at least 50% of our outstanding securities, (3) a merger, consolidation or similar transaction following which we are not the surviving corporation, or (4) a merger, consolidation or similar transaction following which we are the surviving corporation but the shares of our common stock outstanding immediately prior to such transaction are converted or exchanged into other property by virtue of the transaction.

Amendment; Termination

Our board of directors may amend or terminate the Restated 2018 Plan at any time; provided that no amendment may adversely impair the benefits of participants with outstanding awards without such participant's consent. Our stockholders must approve any amendment if such approval is required under applicable law or listing requirements. No incentive stock options may be granted after the tenth anniversary of the date our board of directors adopted our Restated 2018 Plan.

2008 Equity Incentive Plan

General

In January 2008, our board of directors adopted and our stockholders approved our 2008 Plan. Our 2008 Plan provided for the grant of incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards and restricted stock unit awards to our employees, directors and consultants and those of our affiliates.

Our 2008 Plan expired pursuant to its terms in January 2018, and therefore no new awards may be issued from this plan. However, outstanding options granted under the 2008 Plan will remain outstanding, subject to the terms of the 2008 Plan and the relevant award agreement, until such options are exercised or they terminate or expire by their terms.

Authorized Shares

As of June 30, 2018, options to purchase a total of 16,319,737 shares of common stock at a weighted average exercise price of $2.44 were issued and outstanding under the 2008 Plan and a total of 9,254,696 shares of common stock (net of early exercised options repurchased) had been issued upon the exercise of options granted under the 2008 Plan.

Administration

Our board of directors, or a duly authorized committee thereof, has the authority to administer the 2008 Plan. Our board has delegated concurrent authority to administer our 2008 Plan to the compensation committee under the terms of the compensation committee's charter. Among other powers, the plan administrator has the authority to modify outstanding awards under our 2008 Plan, and to reduce the exercise price of any outstanding award, cancel any outstanding award in exchange for a new award, cash or other consideration, or take any other action that is treated as a repricing under generally accepted accounting principles, in each case with the consent of any adversely affected participant.

Corporate Transaction

Our 2008 Plan provides that in the event of a corporate transaction, the successor corporation may assume each outstanding award or may substitute similar awards for each outstanding award. If outstanding awards are not assumed or substituted, the vesting of such awards held by current service providers will accelerate in full prior to the consummation of the transaction, and any awards not exercised will terminate upon closing of the corporate transaction. In addition, the plan administrator may provide for unexercised awards that will otherwise terminate upon closing of the corporate transaction to be cancelled at closing in exchange for a payment equal in value to the amount such award holder would have received in such transaction upon exercise of the award, minus the exercise price.

Under the 2008 Plan, a corporate transaction is generally the consummation of (1) a sale or other disposition of all or substantially all of our consolidated assets, (2) a sale or other disposition of at least 90% of our outstanding securities, (3) a merger, consolidation or similar transaction following which we are not the surviving corporation, or (4) a merger, consolidation or similar transaction following which we are the surviving corporation but the shares of our common stock outstanding immediately prior to such transaction are converted or exchanged into other property by virtue of the transaction.

2018 Employee Stock Purchase Plan

In 2018, our board of directors adopted, and in 2018, our stockholders approved, the 2018 Employee Stock Purchase Plan, or ESPP, which will become effective upon the completion of this offering. The purpose of the ESPP is to enable our eligible employees, through payroll deductions or cash contributions, to purchase shares of our common stock, to increase our employees' interest in our growth and success and encourage employees to remain in our employment.

Share Reserve

Following this offering, the ESPP authorizes the issuance of shares of our common stock pursuant to purchase rights granted to our employees or to employees of any of our designated affiliates. The number of shares of our common stock reserved for issuance will automatically increase on January 1 of each calendar year, from January 1, 2019 (assuming the ESPP becomes effective

before such date) through January 1, 2028 by the least of (1) % of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year, (2) shares, or (3) a number determined by our board of directors that is less than (1) and (2). The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code. As of the date hereof, no shares of our common stock have been purchased under the ESPP.

Administration

Our board of directors, or a duly authorized committee thereof, has the authority to administer the ESPP. Our board of directors has delegated concurrent authority to administer the ESPP to our compensation committee. The ESPP is implemented through a series of offerings of purchase rights to eligible employees. Under the ESPP, we may specify offerings with durations of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of our common stock will be purchased for employees participating in the offering. An offering may be terminated under certain circumstances.

The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code for our U.S. employees. In addition, the ESPP authorizes grants of purchase rights that do not comply with Section 423 of the Code under a separate non-423 component. In particular, where such purchase rights are granted to employees who are employed or located outside the United States, our board of directors may adopt rules that are beyond the scope of Section 423 of the Code.

Payroll Deductions

Generally, all regular employees, including executive officers, employed by us or by any of our designated affiliates, may participate in the ESPP and may contribute, normally through payroll deductions, up to % of their earnings for the purchase of our common stock under the ESPP. Unless otherwise determined by our board of directors, common stock will be purchased for accounts of employees participating in the ESPP at a price per share equal to the lower of (1) 85% of the fair market value of a share of our common stock on the first date of an offering or (2) 85% of the fair market value of a share of our common stock on the date of purchase.

Limitations

Employees may have to satisfy one or more of the following service requirements before participating in the ESPP, as determined by our board of directors: (1) customarily employed for more than 20 hours per week, (2) customarily employed for more than five months per calendar year or (3) continuous employment with us or one of our affiliates for a period of time (not to exceed two years). No employee may purchase shares under the ESPP at a rate in excess of $25,000 worth of our common stock based on the fair market value per share of our common stock at the beginning of an offering for each year such a purchase right is outstanding. Finally, no employee will be eligible for the grant of any purchase rights under the ESPP if immediately after such rights are granted, such employee has voting power over 5% or more of our outstanding capital stock measured by vote or value pursuant to Section 424(d) of the Code.

Changes to Capital Structure

In the event that there occurs a change in our capital structure through such actions as a stock split, merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or similar transaction, the board of directors will

make appropriate adjustments to (1) the number of shares reserved under the ESPP, (2) the maximum number of shares by which the share reserve may increase automatically each year and (3) the number of shares and purchase price of all outstanding purchase rights.

Corporate Transactions

In the event of certain significant corporate transactions, including the consummation of: (1) a sale of all our assets, (2) the sale or disposition of 90% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction and (4) a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately prior to such transaction are converted or exchanged into other property by virtue of the transaction, any then-outstanding rights to purchase our stock under the ESPP may be assumed, continued or substituted for by any surviving or acquiring entity (or its parent company). If the surviving or acquiring entity (or its parent company) elects not to assume, continue or substitute for such purchase rights, then the participants' accumulated payroll contributions will be used to purchase shares of our common stock within ten business days prior to such corporate transaction, and such purchase rights will terminate immediately.

Plan Amendments, Termination

Our board of directors has the authority to amend or terminate our ESPP, provided that except in certain circumstances any such amendment or termination may not materially impair any outstanding purchase rights without the holder's consent. We will obtain stockholder approval of any amendment to our ESPP as required by applicable law or listing requirements.

Non-Employee Director Compensation

Future Director Compensation

In , 2018, our board of directors approved a non-employee director compensation policy, which will be effective for all non-employee directors upon the completion of this offering. Each non-employee director will receive an annual base retainer of $. In addition, our non-employee directors will receive the following cash compensation for board services, as applicable:

- the chairperson will receive an additional annual retainer of $;
- each member of our audit, compensation and nominating and corporate governance committees, other than the chairperson, will receive an additional annual retainer of $, $ and $, respectively; and
- each chairperson of our audit, compensation and nominating and corporate governance committees will receive an additional annual retainer of $, $ and $, respectively.

We will pay all amounts in quarterly installments. We will also reimburse each of our directors for their travel expenses incurred in connection with their attendance at board of directors and committee meetings. In addition, newly appointed non-employee directors will receive a one-time initial award of options to purchase shares of our common stock, which will vest one-third after the first year, with the remaining shares vesting quarterly in years two and three following the grant date, such that the shares will be fully vested on the third anniversary of the date of grant, subject to the director's continued service on the board of directors. Thereafter, each non-employee director will receive an annual award of options to purchase shares of our common stock, which will vest quarterly over one year from the grant date, such that the shares will be fully vested on the first anniversary of the date of grant, subject to the director's continued service on the board of directors. In addition, in the event of a change in control of the company, the shares underlying such grants will vest and become exercisable immediately prior to the effectiveness of such change in control.

Director Compensation

Our non-employee directors did not receive any cash or equity compensation for their services as directors during 2017.

Limitation of Liability and Indemnification Agreements

Our amended and restated certificate of incorporation and amended and restated bylaws, each to become effective upon the completion of this offering, provide that we will limit the liability of our directors, and may indemnify our directors and officers, to the maximum extent permitted by the Delaware General Corporation Law, or DGCL. The DGCL provides that directors of a corporation will not be personally liable for monetary damages for breach of their fiduciary duties as directors, except for liability for any:

- breach of their duty of loyalty to the corporation or its stockholders;
- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or redemption of shares; or
- transaction from which the directors derived an improper personal benefit.

These limitations of liability do not apply to liabilities arising under federal securities laws and do not affect the availability of equitable remedies, such as injunctive relief or rescission.

We have entered into separate indemnification agreements with our directors and officers in addition to the indemnification provided for in our amended and restated bylaws. These indemnification agreements provide, among other things, that we will indemnify our directors and officers for certain expenses, including damages, judgments, fines, penalties, settlements and costs and attorneys' fees and disbursements, incurred by a director or officer in any claim, action or proceeding arising in his or her capacity as a director or officer of our company or in connection with service at our request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that a director or officer makes a claim for indemnification.

We also maintain a directors' and officers' insurance policy pursuant to which our directors and officers are insured against liability for actions taken in their capacities as directors and officers. We believe that these indemnification provisions and insurance are useful to attract and retain qualified directors and officers.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duties. They may also reduce the likelihood of derivative litigation against directors and officers, even though an action, if successful, might benefit us and our stockholders. A stockholder's investment may be harmed to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. There is no pending litigation or proceeding naming any of our directors or officers as to which indemnification is being sought, nor are we aware of any pending or threatened litigation that may result in claims for indemnification by any director or officer.

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

Other than compensation arrangements, we describe below transactions and series of similar transactions, since January 1, 2015, to which we were a party or will be a party, in which:

- the amounts involved exceeded or will exceed $120,000; and
- any of our directors, executive officers, or holders of more than 5% of our common stock, or any member of the immediate family of the foregoing persons, had or will have a direct or indirect material interest.

We have entered into various employment-related agreements and compensatory arrangements with our directors and executive officers that, among other things, provide for compensatory and certain severance and change in control benefits. For a description of these agreements and arrangements, see the sections titled “Executive and Director Compensation—Agreements with our Named Executive Officers” and “Executive and Director Compensation—Potential Payments upon Termination or Change of Control.”

Merck Collaboration Agreement

In 2015, we entered into a research collaboration, product development and license agreement with Merck. For a detailed description of this agreement, see the section titled “Business—Our Collaboration with Merck.”

Proposed Concurrent Private Placement

Merck, a strategic collaborator and existing stockholder, has an option to purchase and we have an option to sell, in a separate private placement concurrent with the completion of this offering at a price per share equal to the public offering price, a number of shares of our common stock that would result in Merck owning up to approximately 19.9% of our outstanding shares of common stock following the completion of this offering. Based upon an assumed initial public offering price of $ per share, which is the midpoint of the range set forth on the cover page of this prospectus, Merck would purchase up to shares of our common stock. The sale of such shares will not be registered under the Securities Act of 1933, as amended. While we believe Merck intends to exercise this option, or, in lieu of exercise by Merck, we intend to exercise this option, no binding election to exercise the option has been made by us or Merck and, accordingly Merck may purchase fewer or no shares in such private placement. The completion of this offering is not contingent upon the completion of such concurrent private placement.

Series D Convertible Preferred Stock Financing

In February 2015 and March 2015, we issued an aggregate of 7,364,000 shares of our Series D convertible preferred stock at $5.00 per share, for aggregate consideration of $36,820,000. The table below sets forth the number of shares of Series D convertible preferred stock sold to stockholders who held more than 5% of a class of our capital stock and their affiliates, to the extent they were issued more than $120,000 of Series D convertible preferred stock:

	Number of Shares of Series D Convertible Preferred Stock	Aggregate Purchase Price
Entities affiliated with The Column Group LP(1)	2,000,000	$ 10,000,000
Topspin Fund L.P.	2,000,000	$ 10,000,000
Prospect Venture Partners III, L.P.(2)	150,000	$ 750,000
Tichenor Ventures, LLC(3).	50,000	$ 250,000

(1) David V. Goeddel, Ph.D. and Peter Svennilson, members of our board of directors, are affiliated with The Column Group LP
(2) David Schnell, M.D., a member of our board of directors, is affiliated with Prospect Venture Partners III, L.P.
(3) McHenry T. Tichenor, Jr., a member of our board of directors, is affiliated with Tichenor Ventures, LLC.

Series E Convertible Preferred Stock Financing

In February 2015, Merck, in conjunction with our research collaboration, product development and license agreement, entered into a stock purchase agreement with us to purchase approximately 17,666,666 our Series E convertible preferred stock at $6.00 per share, for aggregate consideration of $106 million. Merck was the sole investor in our Series E convertible preferred stock financing.

Amended and Restated Investor Rights Agreement

We have entered into an amended and restated investor rights agreement with certain holders of our convertible preferred stock, including entities with which certain of our directors are affiliated. This agreement provides that the holders of common stock issuable upon conversion of our convertible preferred stock have the right to demand that we file a registration statement or request that their shares of common stock be covered by a registration statement that we are otherwise filing. With respect to this offering, the registration rights have been validly waived. In addition to registration rights, the amended and restated investor rights agreement provides for certain information rights and a right of first offer. The provisions of the amended and restated investors' rights agreement, other than those related to registration rights, will terminate upon the completion of this offering. For a detailed description of registration rights under this agreement, see "Description of Capital Stock—Registration Rights."

Voting Agreement

We have entered into an amended and restated voting agreement under which certain holders of our capital stock, including certain holders of 5% of our capital stock and entities affiliated with certain of our directors, have agreed to vote in a certain way on certain matters, including with respect to the election of directors. All of our current directors were elected pursuant to the terms of this agreement. The amended and restated voting agreement will terminate upon the completion of this offering.

Right of First Refusal and Co-Sale Agreement

We have entered into an amended and restated right of first refusal and co-sale agreement with our founder, our chief executive officer and the holders of our convertible preferred stock, including certain holders of 5% of our capital stock and entities affiliated with certain of our directors, pursuant to which the holders of convertible preferred stock have a right of first refusal and co-sale in respect of certain sales of securities by our founder and our chief executive officer. Upon the completion of this offering, the right of first refusal and co-sale agreement will terminate.

Other Transactions

In June 2015, entities affiliated with Tichenor Ventures, LLC sold an aggregate of 1,750,001 shares of our Series B convertible preferred stock at a price of $6.00 per share to the Stony Brook Foundation, Inc. and the Institute for Advanced Study. McHenry T. Tichenor, Jr. is a member of our board of directors.

In May 2016, entities affiliated with The Column Group and Tichenor Ventures, LLC purchased a total of 629,879 shares of our common stock at a price of $3.82 per share from a total of six employees, including 410,633 shares purchased from Dr. Chen.

In December 2016, entities affiliated with The Column Group purchased a total of 220,000 shares of our Series B and Series C convertible preferred stock at a price of $6.00 per share from a total of eight stockholders.

Indemnification Agreements

We have entered into indemnification agreements with each of our current directors and officers. For more information regarding these agreement, see “Executive and Director Compensation—Limitation of Liability and Indemnification Agreements.”

Policies and Procedures Regarding Transactions with Related Persons

We intend to adopt a related person transaction policy that will be in effect upon completion of this offering. Pursuant to the related person transaction policy, all proposed related person transactions must be approved by either (i) our audit committee (or any other committee of our board of directors consisting of independent directors), or (ii) our full board of directors. This review will cover any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we were or are to be a participant, the amount involved exceeds $120,000, and a related person had or will have a direct or indirect material interest, including purchases of goods or services by or from a related person or entities in which the related person has a material interest, and indebtedness, guarantees of indebtedness and employment by us of a related person. A “related person” is any person who is or was one of our executive officers, directors or director nominees or is a holder of more than 5% of our common stock, or their immediate family members or any entity owned or controlled by any of the foregoing persons.

All of the transactions described above were entered into prior to the adoption of this policy and were approved by our board of directors.

PRINCIPAL STOCKHOLDERS

The following table sets forth information regarding the beneficial ownership of our capital stock as of June 30, 2018 by:

- each of our named executive officers;
- each of our directors;
- all of our current executive officers and directors as a group; and
- each person, or group of affiliated persons, known by us to beneficially own more than 5% of any class of our voting securities.

We have based our calculation of beneficial ownership prior to this offering and proposed concurrent private placement to Merck on 107,184,644 shares of common stock outstanding as of June 30, 2018, which includes 94,534,932 shares of our common stock resulting from the conversion of all outstanding shares of our convertible preferred stock into our common stock immediately prior to the completion of this offering and proposed concurrent private placement to Merck, as if this conversion had occurred as of June 30, 2018. We have based our calculation of beneficial ownership after this offering and proposed concurrent private placement to Merck on shares of our common stock outstanding immediately following the completion of this offering and the proposed concurrent private placement to Merck. Ownership information assumes no exercise of the underwriters' option to purchase additional shares.

Beneficial ownership is determined according to the rules of the SEC and generally means that a person has beneficial ownership of a security if he or she possesses sole or shared voting or investment power of that security, and includes options and warrants that are currently exercisable within 60 days of June 30, 2018. Options to purchase shares of our common stock that are exercisable within 60 days of June 30, 2018 are deemed to be beneficially owned by the persons holding these options for the purpose of computing percentage ownership of that person, but are not treated as outstanding for the purpose of computing any other person's ownership percentage. Except as indicated in the footnotes below, each of the beneficial owners named in the table below has, and upon completion of this offering will have, to our knowledge, sole voting and investment power with respect to all shares of common stock listed as beneficially owned by him or her, subject to community property laws where applicable. Unless otherwise indicated, the address for each of the stockholders in the table below is c/o NGM Biopharmaceuticals, Inc., 333 Oyster Point Blvd., South San Francisco, California 94080.

		Percentage of Shares Beneficially Owned	
Name of beneficial owner	Number of shares beneficially owned	Before offering and private placement	After offering and private placement
5% and Greater Stockholders:			
Entities affiliated with The Column Group(1)	27,138,182	25.3%	
Merck Sharp & Dohme Corp.(2)	17,666,666	16.5%	
Prospect Ventures Partners III, L.P.(3)	9,850,000	9.2%	
Topspin Fund L.P.(4)	9,666,667	9.0%	
Entities affiliated with Rho Ventures(5)	7,533,334	7.0%	
Executive Officers and Directors:			
William J. Rieflin(6)	5,988,336	5.5%	
Jin-Long Chen, Ph.D.(7)	5,587,886	5.1%	
Jeffrey D. Jonker(8)	1,515,000	1.4%	
David V. Goeddel, Ph.D.(9)	27,518,182	25.7%	
Suzanne Sawochka Hooper	—	—	
Mark Leschly(10)	7,533,334	7.0%	
David Schnell, M.D.(11)	9,850,000	9.2%	
Peter Svennilson(12)	27,138,182	25.3%	
McHenry T. Tichenor, Jr.(13)	3,744,629	3.5%	
All executive officers and directors as a group (11 persons)(14)	63,877,367	55.6%	

(1) Consists of (i) 22,206,666 shares held of record by The Column Group, LP, (ii) 4,531,516 shares held of record by The Column Group II, LP, (iii) 200,000 shares held of record by The Column Group GP, LP and (iv) 200,000 shares held of record by The Column Group Management, LP. Mr. Svennilson and Dr. Goeddel are managing partners of The Column Group GP, LP, The Column Group II GP, LP and Ponoi Capital, GP, LP, which are the general partners of The Column Group, LP and The Column Group II, LP, respectively, and share voting and investment power with respect to such shares. The principal address of The Column Group, LP is 1700 Owens Street, Suite 500, San Francisco, California 94158.

(2) Merck has agreed to vote its shares in favor of our nominees to the board of directors, increases in the authorized capital stock of the company and amendments to our equity plans approved by our board of directors, in each case as recommended by the chairman our board of directors. Merck has also agreed, subject to specified exceptions, and during the period of our five-year initial research phase, not to sell any of its shares of our capital stock. The principal address of

Merck is One Merck Drive, Whitehouse Station, New Jersey 08889. In addition, the percentage of shares beneficially owned after this offering assumes that Merck has purchased, in a separate proposed private placement concurrent with the completion of this offering shares of our common stock, based upon an assumed initial public offering price of $ per share, which is the midpoint of the range set forth on the cover page of this prospectus.

(3) The voting and investment power with respect to such shares is shared by the following managing members of its general partner, Prospect Management Co. III, L.L.C.: Dr. Schnell and Dr. Russell Hirsch. The principal address of Prospect Venture Partners III L.P. is 525 University Avenue, Suite 1350, Palo Alto, California 94301.

(4) The voting and investment power with respect to such shares is shared by the following managing partners of Topspin Fund L.P.: Andrew Gyenes, Leo Guthart, James Simons and Steven Winick. The principal address of Topspin Fund L.P. is Three Expressway Plaza, #200, Roslyn Heights, New York, New York 11577.

(5) Consists of (a) 6,925,297 shares held of record by Rho Ventures V, L.P. and (b) 608,037 shares held of record by Rho Ventures V Affiliates L.L.C. The voting and investment power with respect to the shares held by Rho Ventures V, L.P. and Rho Ventures V Affiliates L.L.C. is shared by the following members of Rho Capital Partners LLC, which is the managing member of RMV V, L.L.C., which is the general partner of Rho Ventures V, L.P. and the managing member of Rho Ventures V Affiliates L.L.C.: Habib Kairouz, Mark Leschly and Joshua Ruch. The address for the funds affiliated with Rho Ventures is Carnegie Hall Tower, 152 West 57th Street, 23rd Floor, New York, New York 10019.

(6) Consists of (i) 4,588,336 shares held in trust for which Mr. Rieflin serves as trustee and shares voting and investment control and (ii) 1,400,000 shares pursuant to options exercisable within 60 days of June 30, 2018, of which 560,415 shares have vested as of such date.

(7) Consists of (i) 2,262,886 shares and (ii) 3,325,000 shares pursuant to options exercisable within 60 days of June 30, 2018, of which 2,510,416 shares have vested as of such date.

(8) Consists of (i) 425,000 shares and (ii) 1,090,000 shares pursuant to options exercisable within 60 days of June 30, 2018, of which 612,604 shares have vested as of such date.

(9) Consists of (i) 380,000 shares held in trust for which David V. Goeddel and Alena Z. Goeddel serve as co-trustees, and (ii) the shares described in footnote (1) above.

(10) Consists of the shares described in footnote (5) above.

(11) Consists of the shares described in footnote (3) above.

(12) Consists of the shares described in footnote (1) above.

(13) Consists of 3,744,629 shares held of record by Tichenor Ventures, LLC. Mr. Tichenor is the president and managing partner of Tichenor Ventures, LLC and has sole voting and investment power with respect to such shares. The principal address of Tichenor Ventures, LLC is 100 Crescent Court, Suite 700, Dallas, Texas 75201.

(14) Consists of (i) 56,082,367 shares held of record by our executive officers and directors, of which 93,230 shares are subject to repurchase by us at the original purchase price as of June 30, 2018, and (ii) 7,795,000 shares pursuant to options exercisable within 60 days of June 30, 2018, of which 5,070,515 shares have vested as of such date.

DESCRIPTION OF CAPITAL STOCK

General

The following description of our capital stock summarizes the most important terms of our capital stock as they are expected to be in effect upon the completion of this offering. The descriptions of our capital stock and certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws are summaries and are qualified by reference to the amended and restated certificate of incorporation and the amended and restated bylaws that will be in effect upon the completion of this offering. Copies of these documents will be filed with the SEC as exhibits to our registration statement, of which this prospectus forms a part.

Our amended and restated certificate of incorporation provides for common stock and undesignated convertible preferred stock, the rights, preferences and privileges of which may be designated from time to time by our board of directors.

Upon the completion of this offering, our amended and restated certificate of incorporation will authorize us to issue up to shares of common stock, par value $0.001 per share, and shares of preferred stock, par value $0.001 per share. As of June 30, 2018, assuming the conversion of all outstanding shares of our convertible preferred stock into an aggregate of 94,534,932 shares of our common stock, there were outstanding:

- 107,184,644 shares of our common stock held by approximately 166 stockholders of record;
- 39,274 shares of our common stock issuable upon exercise of the outstanding Series A convertible preferred stock warrant; and
- 19,398,203 shares of our common stock issuable upon exercise of outstanding stock options.

Common Stock

Voting Rights

Each holder of common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders. In addition to any vote of holders of a specific class or series, or required by law or the amended and restated certificate of incorporation, the affirmative vote of holders of at least 66 2/3% of the voting power of all of the then outstanding shares of capital stock, voting as a single class, will be required to amend certain provisions of our amended and restated certificate of incorporation, including provisions relating to amending our amended and restated bylaws, the classified board, the size of our board, removal of directors, director liability, vacancies on our board, special meetings, stockholder notices, actions by written consent and exclusive jurisdiction.

Dividends

Subject to preferences that may apply to any outstanding convertible preferred stock, holders of our common stock are entitled to receive ratably any dividends that our board of directors may declare out of funds legally available for that purpose.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in all assets remaining after payment of liabilities and the liquidation preference of any outstanding convertible preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion, subscription or other rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of our convertible preferred stock that we may designate in the future.

Fully Paid and Nonassessable

All outstanding shares of our common stock are fully paid and nonassessable, and the shares of common stock to be issued upon completion of this offering will be fully paid and nonassessable.

Preferred Stock

In connection with this offering, all outstanding shares of our convertible preferred stock and warrants to purchase shares of convertible preferred stock will convert into shares of common stock or warrants to purchase shares of common stock.

Upon completion of this offering, our board of directors will have the authority, without further action by our stockholders, to issue up to shares of preferred stock in one or more series and to fix the number, rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences and sinking fund terms, and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control or other corporate action. We have no current plan to issue any shares of convertible preferred stock.

Warrant

As of June 30, 2018, there was an outstanding warrant to purchase 39,274 shares of our Series A convertible preferred stock at an exercise price of $1.00 per share. We issued the warrant in connection with a debt facility and its subsequent drawdowns from February through December 2009. The warrant has a net exercise provision under which the holder, in lieu of payment of the exercise price in cash, can surrender the warrant and receive a net number of shares of our convertible preferred stock based on the fair market value of such stock at the time of exercise of the warrant after deduction of the aggregate exercise price. Unless earlier exercised, the warrant will expire on February 3, 2019.

Registration Rights

We are party to an amended and restated investor rights agreement that provides that holders of our convertible preferred stock and certain holders of our common stock, including certain holders of 5% of our capital stock and entities affiliated with certain of our directors, have certain registration rights, as set forth below. The registration of shares of our common stock pursuant to the exercise of registration rights described below would enable the holders to sell these shares without restriction under the Securities Act when the applicable registration statement is declared effective. We will pay the registration expenses, other than the underwriting discounts and commissions, of the shares registered pursuant to the demand, piggyback and Form S-3 registrations described below.

Generally, in an underwritten offering, the managing underwriter, if any, has the right, subject to specified conditions, to limit the number of shares such holders may include. The demand, piggyback and Form S-3 registration rights described below will expire (i) five years after the effective date of the registration statement, of which this prospectus forms a part, (ii) with respect to any particular holder, at such time that such holder can sell its shares under Rule 144 of the Securities Act during any three-month period or (iii) upon termination of the investors' rights agreement.

Demand Registration Rights

The holders of an aggregate of 94,574,206 shares of common stock outstanding as of June 30, 2018, including shares issuable upon conversion of outstanding convertible preferred stock, giving effect to the company conversion as if it occurred on such date, will be entitled to certain demand registration rights. At any time following 180 days after the completion of this offering, the holders of 40% of the shares having demand registration rights may request that we register at least a majority of their shares of common stock for sale under the Securities Act. We will effect the registration as requested, unless, in the good faith judgment of our board of directors, such registration would be materially detrimental to the company and its stockholders and should be delayed. In addition, when we are eligible for the use of Form S-3, or any successor form, holders of the shares having demand registration rights may make unlimited requests that we register all or a portion of their common stock for sale under the Securities Act on Form S-3, or any successor form, so long as the aggregate price to the public in connection with any such offering is at least $2 million.

Piggyback Registration Rights

In connection with this offering, the holders of an aggregate of 94,574,206 shares of common stock outstanding at June 30, 2018, including shares issuable upon conversion of outstanding convertible preferred stock, giving effect to the company conversion as if it occurred on such date, were entitled to, and the necessary percentage of holders waived, their rights to notice of this offering and to include their shares of registrable securities in this offering. In the event that we propose to register any of our securities under the Securities Act in another offering, either for our own account or for the account of other security holders, the holders of these shares will be entitled to certain "piggyback" registration rights allowing them to include their shares in such registration, subject to certain marketing and other limitations. As a result, whenever we propose to file a registration statement under the Securities Act, including a registration statement on Form S-3 as discussed below, other than with respect to a demand registration or a registration statement on Forms S-4 or S-8 or related to stock issued upon conversion of debt securities, the holders of these shares are entitled to notice of the registration and have the right, subject to limitations that the underwriters may impose on the number of shares included in the registration, to include their shares in the registration.

Form S-3 Registration Rights

The holders of an aggregate of 94,574,206 shares of common stock outstanding at June 30, 2018, including shares issuable upon conversion of outstanding convertible preferred stock, giving effect to the company conversion as if it occurred on such date, will be entitled to certain Form S-3 registration rights. Any holder or holders of these shares can make a request that we register their shares on Form S-3 if we are qualified to file a registration statement on Form S-3, subject to certain specified exceptions. Such request for registration on Form S-3 must cover securities the aggregate offering price of which, before payment of the underwriting discount, equals or exceeds $2 million. We will not be required to effect more than two registrations on Form S-3 within any 12-month period.

Anti-Takeover Provisions

Certificate of Incorporation and Bylaws to Be in Effect Upon the Completion of this Offering

Our amended and restated certificate of incorporation and amended and restated bylaws, each to become effective upon the completion of this offering, will include a number of provisions that may deter or impede hostile takeovers or changes of control or management. These provisions include:

- ***Issuance of Undesignated Preferred Stock:*** After the filing of our amended and restated certificate of incorporation, our board of directors will have the authority, without further action by the stockholders, to issue up to shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by our board of directors. The existence of authorized but unissued shares of preferred stock enables our board of directors to make it more difficult to attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise.
- ***Classified Board:*** Our amended and restated certificate of incorporation provides for a classified board of directors consisting of three classes of directors, with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. This provision may have the effect of delaying a change in control of our board.
- ***Board of Directors Vacancies:*** Our amended and restated certificate of incorporation and amended and restated bylaws authorize only our board of directors to fill vacant directorships. In addition, the number of directors constituting our board of directors may be set only by resolution adopted by a majority vote of our entire board of directors. These provisions prevent a stockholder from increasing the size of our board of directors and gaining control of our board of directors by filling the resulting vacancies with its own nominees.
- ***Stockholder Action; Special Meetings of Stockholders:*** Our amended and restated certificate of incorporation provides that our stockholders may not take action by written consent, but may only take action at annual or special meetings of our stockholders. Stockholders will not be permitted to cumulate their votes for the election of directors. Our amended and restated certificate of incorporation further provides that only the chairman of our board of directors or a majority of our board of directors may call special meetings of our stockholders.
- ***Advance Notice Requirements for Stockholder Proposals and Director Nominations:*** Our amended and restated bylaws provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders, or to nominate candidates for election as directors at our annual meeting of stockholders. Our amended and restated bylaws also specify certain requirements as to the form and content of a stockholder's notice. These provisions may make it more difficult for our stockholders to bring matters before our annual meeting of stockholders or to nominate directors at annual meetings of stockholders.

We designed these provisions to enhance the likelihood of continued stability in the composition of our board of directors and its policies, to discourage certain types of transactions that may involve an actual or threatened acquisition of us and to reduce our vulnerability to an unsolicited acquisition proposal. We also designed these provisions to discourage certain tactics that may be used in proxy fights. However, these provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they may also reduce fluctuations in the market price of our shares that could result from actual or rumored takeover attempts.

Certain provisions in our collaboration agreement with Merck may also deter a change of control. See "Risk Factors—Some provisions of our charter documents, Delaware law and our collaboration

agreement with Merck may have anti-takeover effects or could otherwise discourage an acquisition of us by others, even if an acquisition would benefit our stockholders and may prevent attempts by our stockholders to replace or remove our current management."

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the DGCL, which prohibits a Delaware corporation from engaging in a business combination with any interested stockholder for a period of three years following the date the person became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested holder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (a) by persons who are directors and also officers and (b) pursuant to employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; and
- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 of the DGCL defines business combination to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits by or through the corporation.

In general, Section 203 of the DGCL defines an "interested stockholder" as an entity or person who, together with the entity's or person's affiliates and associates, beneficially owns, or is an affiliate of the corporation and within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

A Delaware corporation may opt out of these provisions with an express provision in its certificate of incorporation. We have not opted out of these provisions, which may as a result, discourage or prevent mergers or other takeover or change in control attempts of us.

Choice of Forum

Our amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware will be the exclusive forum for: (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a breach of fiduciary duty owed by any director, officer or other employee to us or our stockholders; (iii) any action asserting a claim against us or any director or officer or other employee arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation or amended and restated bylaws; or (iv) any action asserting a claim against us or any director or officer or other employee that is governed by the internal affairs doctrine. Our amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act.

Transfer Agent and Registrar

Our transfer agent and registrar for our common stock upon the completion of this offering will be .

The Nasdaq Global Market

We intend to apply to have our common stock listed on the Nasdaq Global Market under the trading symbol “NGM.”

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, no public market for our common stock existed, and a liquid trading market for our common stock may not develop or be sustained after this offering. Future sales of substantial amounts of our common stock in the public market, including shares issued upon exercise of outstanding options and warrants, or the anticipation of such sales, could adversely affect prevailing market prices of our common stock from time to time and could impair our ability to raise equity capital in the future. Furthermore, because only a limited number of shares of our common stock will be available for sale shortly after this offering due to certain contractual and legal restrictions on resale described below, sales of substantial amounts of our common stock in the public market after such restrictions lapse, or the anticipation of such sales, could adversely affect the prevailing market price of our common stock and our ability to raise equity capital in the future.

Based on the number of shares of common stock outstanding as of June 30, 2018, upon completion of this offering, shares of our common stock will be outstanding.

All of the shares sold in this offering will be freely tradable unless purchased by our affiliates. The remaining shares of common stock outstanding after this offering will be restricted as a result of securities laws or lock-up agreements as described below. Following the expiration of the lock-up period, all shares will be eligible for resale, subject to compliance with Rule 144 or Rule 701 of the Securities Act, to the extent these shares have been released from any repurchase option that we may hold.

We may issue shares of common stock from time to time as consideration for future acquisitions, investments or other corporate purposes. In the event that any such acquisition, investment or other transaction is significant, the number of shares of common stock that we may issue may in turn be significant. We may also grant registration rights covering those shares of common stock issued in connection with any such acquisition and investment.

In addition, shares of common stock that are either subject to outstanding options or warrants or reserved for future issuance under our equity incentive plans will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements and Rule 144 and Rule 701 of the Securities Act.

Rule 144

In general, under Rule 144 of the Securities Act as in effect on the date of this prospectus, beginning 90 days after the date of this prospectus, any person who is not our affiliate at any time during the preceding three months, and who has beneficially owned their shares for at least six months, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares of our common stock provided current public information about us is available and, after owning such shares for at least one year, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares of our common stock without restriction.

Beginning 90 days after the date of this prospectus, a person who is our affiliate or who was our affiliate at any time during the preceding three months, and who has beneficially owned restricted securities for at least six months, including the holding period of any prior owner other than one of our affiliates, is entitled to sell within any three-month period a number of shares that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately shares, or shares if the underwriters exercise their option to

purchase additional shares in full, immediately following this offering, based on the number of shares of our common stock outstanding upon completion of this offering; or

- the average weekly trading volume of our common stock on Nasdaq during the four calendar weeks preceding the filing of a Notice of Proposed Sale of Securities pursuant to Rule 144 with respect to the sale;

provided, in each case, that we are subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Sales under Rule 144 by our affiliates are also subject to manner of sale provisions and notice requirements and to the availability of current public information about us.

Upon expiration of the 180-day lock-up period described below, shares of our common stock will be eligible for sale under Rule 144. We cannot estimate the number of shares of our common stock that our existing stockholders will elect to sell under Rule 144.

Rule 701

In general, under Rule 701 of the Securities Act, any of an issuer's employees, directors, officers, consultants or advisors who purchases shares from the issuer in connection with a compensatory stock or option plan or other written agreement before the effective date of a registration statement under the Securities Act, is entitled to sell such shares 90 days after such effective date in reliance on Rule 144. An affiliate of the issuer can resell shares in reliance on Rule 144 without having to comply with the holding period requirement, and non-affiliates of the issuer can resell shares in reliance on Rule 144 without having to comply with the current public information and holding period requirements.

Lock-up Agreements

We, along with our directors and executive officers and substantially all of our other stockholders, have agreed with the underwriters that, for a period of 180 days following the date of this prospectus, we or they will not offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise dispose of any shares of our common stock (including, for our directors and officers, any shares issued in this offering or other issuer-directed shares), or any options or warrants to purchase any shares of our common stock, or any securities convertible into, exchangeable for or that represent the right to receive shares of our common stock, whether now owned or later acquired, owned directly or with respect to which we or they have beneficial ownership within the rules and regulations of the SEC, subject to specified exceptions. The underwriters may, in their sole discretion, at any time without prior notice, release all or any portion of the shares from the restrictions in any such agreement.

Merck has also agreed, subject to specified exceptions, during the period of the initial five-year research phase under our collaboration agreement, not to sell any of its shares of our capital stock. See "Our Collaboration with Merck—Detailed Description of the Merck Collaboration—Standstill, Lock-Up and Voting Agreements."

Equity Incentive Plans

We intend to file one or more registration statements on Form S-8 under the Securities Act to register all shares of common stock subject to outstanding stock options and common stock issuable under our equity incentive plans. We expect to file the registration statement covering such shares shortly after the date of this prospectus, permitting the resale of such shares by non-affiliates in the public market without restriction under the Securities Act and the sale by affiliates in the public market, subject to compliance with the resale provisions of Rule 144. For more information on our equity incentive plans, see "Executive and Director Compensation—Equity Incentive Plans."

Registration Rights

Holders of 94,574,206 shares of our convertible preferred stock, common stock and convertible preferred stock issuable upon exercise of warrants have the right to demand that we file a registration statement or request that we cover their shares by a registration statement that we otherwise file. For more information, see “Description of Capital Stock—Registration Rights.” Except for shares purchased by affiliates, registration of their shares under the Securities Act would result in these shares becoming freely tradable without restriction under the Securities Act immediately upon the effectiveness of the registration statement, subject to the expiration of the lock-up period and to the extent these shares have been released from any repurchase option that we may hold.

MATERIAL UNITED STATES FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS OF OUR COMMON STOCK

The following is a summary of the material U.S. federal income tax consequences to non-U.S. holders (as defined below) of the acquisition, ownership and disposition of our common stock issued pursuant to this offering. This discussion is not a complete analysis of all potential U.S. federal income tax consequences relating thereto, does not address the potential application of the Medicare contribution tax on net investment income, and does not address any estate or gift tax consequences or any tax consequences arising under any state, local or foreign tax laws, or any other U.S. federal tax laws. This discussion is based on the Internal Revenue Code of 1986, as amended, or the Code, and applicable Treasury Regulations promulgated thereunder, judicial decisions and published rulings and administrative pronouncements of the Internal Revenue Service, or IRS, all as in effect as of the date hereof. These authorities are subject to differing interpretations and may change, possibly retroactively, resulting in U.S. federal income tax consequences different from those discussed below. We have not requested a ruling from the IRS with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS or a court will agree with such statements and conclusions.

This discussion is limited to non-U.S. holders who purchase our common stock pursuant to this offering and who hold our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all of the U.S. federal income tax consequences that may be relevant to a particular holder in light of such holder's particular circumstances. This discussion also does not consider any specific facts or circumstances that may be relevant to holders subject to special rules under the U.S. federal income tax laws, including:

- certain former citizens or long-term residents of the United States;
- partnerships or other pass-through entities (and investors therein);
- "controlled foreign corporations";
- "passive foreign investment companies";
- corporations that accumulate earnings to avoid U.S. federal income tax;
- banks, financial institutions, investment funds, insurance companies, brokers, dealers or traders in securities;
- tax-exempt organizations and governmental organizations;
- tax-qualified retirement plans;
- persons subject to the alternative minimum tax;
- persons that own, or have owned, actually or constructively, more than 5% of our common stock;
- accrual-method taxpayers subject to special tax accounting rules under Section 451(b) of the Code;
- persons who have elected to mark securities to market; and
- persons holding our common stock as part of a hedging or conversion transaction or straddle, or a constructive sale, or other risk reduction strategy or integrated investment.

If an entity or arrangement that is classified as a partnership for U.S. federal income tax purposes holds our common stock, the U.S. federal income tax treatment of a partner in the partnership will generally depend on the status of the partner and the activities of the partnership. Partnerships holding our common stock and the partners in such partnerships are urged to consult their tax advisors about the particular U.S. federal income tax consequences to them of holding and disposing of our common stock.

THIS DISCUSSION IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TAX ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF ACQUIRING, OWNING AND DISPOSING OF OUR COMMON STOCK, AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL OR FOREIGN TAX LAWS AND ANY OTHER U.S. FEDERAL TAX LAWS. IN ADDITION, SIGNIFICANT CHANGES IN U.S. FEDERAL INCOME TAX LAWS WERE RECENTLY ENACTED. YOU SHOULD ALSO CONSULT WITH YOUR TAX ADVISOR WITH RESPECT TO SUCH CHANGES IN U.S. TAX LAW AS WELL AS POTENTIAL CONFORMING CHANGES IN STATE TAX LAWS.

Definition of Non-U.S. Holder

For purposes of this discussion, a non-U.S. holder is any beneficial owner of our common stock that is not a "U.S. person" or a partnership (including any entity or arrangement treated as a partnership) for U.S. federal income tax purposes. A U.S. person is any person that, for U.S. federal income tax purposes, is or is treated as any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation (or entity treated as a corporation for U.S. federal income tax purposes) created or organized under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust (1) whose administration is subject to the primary supervision of a U.S. court and which has one or more U.S. persons who have the authority to control all substantial decisions of the trust or (2) that has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

Distributions on Our Common Stock

As described under the section titled "Dividend Policy," we have not paid and do not anticipate paying dividends. However, if we make cash or other property distributions on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts not treated as dividends for U.S. federal income tax purposes will constitute a return of capital and will first be applied against and reduce a holder's tax basis in our common stock, but not below zero. Any excess will be treated as gain realized on the sale or other disposition of our common stock and will be treated as described under the section titled "—Gain on Disposition of Our Common Stock" below.

Subject to the discussions below regarding effectively connected income, backup withholding and Sections 1471 through 1474 of the Code (commonly referred to as FATCA), dividends paid to a non-U.S. holder of our common stock generally will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends or such lower rate specified by an applicable income tax treaty. To receive the benefit of a reduced treaty rate, a non-U.S. holder must furnish us or our paying agent with a valid IRS Form W-8BEN or IRS Form W-8BEN-E (or applicable successor form) including a U.S. taxpayer identification number and certifying such holder's qualification for the reduced rate. This certification must be provided to us or our paying agent before the payment of dividends and must be updated periodically. If the non-U.S. holder holds the stock through a financial institution or other agent acting on the non-U.S. holder's behalf, the non-U.S. holder will be required to provide appropriate documentation to the agent, which then will be required to provide certification to us or our paying agent, either directly or through other intermediaries.

Non-U.S. holders that do not provide the required certification on a timely basis, but that qualify for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS.

If a non-U.S. holder holds our common stock in connection with the conduct of a trade or business in the United States, and dividends paid on our common stock are effectively connected with such holder's U.S. trade or business (and are attributable to such holder's permanent establishment in the United States if required by an applicable tax treaty), the non-U.S. holder will be exempt from U.S. federal withholding tax. To claim the exemption, the non-U.S. holder must generally furnish a valid IRS Form W-8ECI (or applicable successor form) to the applicable withholding agent.

Any dividends paid on our common stock that are effectively connected with a non-U.S. holder's U.S. trade or business (and if required by an applicable income tax treaty, are attributable to a permanent establishment maintained by the non-U.S. holder in the United States) generally will be subject to U.S. federal income tax on a net income basis at the regular graduated U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Gain on Disposition of Our Common Stock

Subject to the discussions below regarding backup withholding and FATCA, a non-U.S. holder generally will not be subject to U.S. federal income tax on any gain realized on the sale or other disposition of our common stock, unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States, and if required by an applicable income tax treaty, is attributable to a permanent establishment maintained by the non-U.S. holder in the United States;
- the non-U.S. holder is a nonresident alien individual present in the United States for 183 days or more during the taxable year of the disposition, and certain other requirements are met; or
- our common stock constitutes a "United States real property interest" by reason of our status as a United States real property holding corporation, or USRPHC, for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding the disposition or the non-U.S. holder's holding period for our common stock, and our common stock is not regularly traded on an established securities market during the calendar year in which the sale or other disposition occurs.

Determining whether we are a USRPHC depends on the fair market value of our U.S. real property interests relative to the fair market value of our other trade or business assets and our foreign real property interests. We believe that we are not currently and do not anticipate becoming a USRPHC for U.S. federal income tax purposes, although there can be no assurance we will not in the future become a USRPHC.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at the regular graduated U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items. Gain described in the second bullet point above will be subject to U.S.

federal income tax at a flat 30% rate (or such lower rate specified by an applicable income tax treaty), but may be offset by certain U.S.-source capital losses (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Information Reporting and Backup Withholding

Annual reports are required to be filed with the IRS and provided to each non-U.S. holder indicating the amount of dividends on our common stock paid to such holder and the amount of any tax withheld with respect to those dividends. These information reporting requirements apply even if no withholding was required because the dividends were effectively connected with the holder's conduct of a U.S. trade or business, or withholding was reduced or eliminated by an applicable income tax treaty. This information also may be made available under a specific treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established. Backup withholding, currently at a 24% rate, generally will not apply to payments to a non-U.S. holder of dividends on or the gross proceeds of a disposition of our common stock provided the non-U.S. holder furnishes the required certification for its non-U.S. status, such as by providing a valid IRS Form W-8BEN, IRS Form W-8BEN-E or IRS Form W-8ECI, or certain other requirements are met. Backup withholding may apply if the payor has actual knowledge, or reason to know, that the holder is a U.S. person who is not an exempt recipient.

Backup withholding is not an additional tax. If any amount is withheld under the backup withholding rules, the non-U.S. holder should consult with a U.S. tax advisor regarding the possibility of and procedure for obtaining a refund or a credit against the non-U.S. holder's U.S. federal income tax liability, if any.

FATCA Withholding Taxes

FATCA imposes a U.S. federal withholding tax of 30% on certain payments made to a "foreign financial institution" (as specially defined under these rules) unless such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding certain U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) or an exemption applies. FATCA also generally will impose a U.S. federal withholding tax of 30% on certain payments made to a non-financial foreign entity unless such entity provides the withholding agent a certification identifying certain direct and indirect U.S. owners of the entity or an exemption applies. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. FATCA currently applies to dividends paid on our common stock. FATCA will also apply to gross proceeds from sales or other dispositions of our common stock after December 31, 2018.

Prospective investors are encouraged to consult with their own tax advisors regarding the possible implications of this legislation on their investment in our common stock.

UNDERWRITING

We and the underwriters named below have entered into an underwriting agreement with respect to the shares being offered. Subject to certain conditions, each underwriter has severally agreed to purchase the number of shares indicated in the following table. Goldman Sachs & Co. LLC, Citigroup Global Markets Inc. and Cowen and Company, LLC are the representatives of the underwriters.

Underwriters	Number of Shares
Goldman Sachs & Co. LLC	
Citigroup Global Markets Inc.	
Cowen and Company, LLC	
Total	

The underwriters are committed to take and pay for all of the shares being offered, if any are taken, other than the shares covered by the option described below unless and until this option is exercised.

The underwriters have an option to buy up to an additional shares of common stock from us. Any shares sold to underwriters pursuant to the option will be sold at the initial public offering price, less underwriting discounts and commissions. They may exercise that option for 30 days. If any shares are purchased pursuant to this option, the underwriters will severally purchase shares in approximately the same proportion as set forth in the table above.

The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares of common stock from us.

Paid by Us	No Exercise	Full Exercise
Per Share	$	$
Total	$	$

Shares sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus. Any shares sold by the underwriters to securities dealers may be sold at a discount of up to $ per share from the initial public offering price. After the initial offering of the shares, the representatives may change the offering price and the other selling terms. The offering of the shares by the underwriters is subject to receipt and acceptance and subject to the underwriters' right to reject any order in whole or in part.

At our request, the underwriters have reserved up to shares being offered by this prospectus for sale at the initial public offering price to our directors, officers, employees, business associates and related persons through a directed share program. The number of shares available for sale to the general public will be reduced by the number of directed shares purchased by participants in the program. Any directed shares not purchased will be offered by the underwriters to the general public on the same basis as all other shares offered. We have agreed to indemnify the underwriters against certain liabilities and expenses, including liabilities under the Securities Act, in connection with the sales of the directed shares.

In connection with this offering, we have agreed with the underwriters, subject to certain exceptions, not to dispose of or hedge any of our common stock or securities convertible into or exchangeable for shares of common stock for 180 days following the date of this prospectus, except with the prior written consent of the representatives. This agreement does not apply to any existing employee benefit plans.

In addition, our executive officers and directors and holders of substantially all of our common stock (including Merck with respect to the shares of our common stock that it owns or will acquire in the proposed concurrent private placement) have agreed with the underwriters, subject to certain exceptions, not to offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise dispose of any shares of our common stock, or any options or warrants to purchase any shares of our common stock, or any securities convertible into, exchangeable for or that represent the right to receive shares of our common stock (including any preferred shares), whether now owned or acquired after entry in the lock-up agreement, owned directly by the party to the lock-up agreement (including holding as a custodian) or with respect to which the party to the lock-up agreement has beneficial ownership within the rules and regulations of the Securities and Exchange Commission (collectively, "lock-up securities"), or to engage in any hedging or other transaction which is designed to or which reasonably could be expected to lead to or result in a sale or disposition of the lock-up securities, for 180 days following the date of this prospectus, except with the prior written consent of the representatives.

The restrictions in the immediately preceding paragraph do not apply to our directors, officers or holders of our outstanding common stock or other securities in certain circumstances, including (i) the transfers not for value of our common stock as bona fide gifts, by will, to an immediate family member or to certain trusts; (ii) to the extent the party to the lock-up agreement is an entity, the transfer of our common stock to affiliates, limited partners, general partners, limited liability company members or stockholders; (iii) transfers of our common stock pursuant to a bona fide third-party tender offer, merger, consolidation or other similar transaction made to all of our stockholders and involving a change of control of us; (iv) transfer of our common stock to us for the net exercise of options granted pursuant to our equity incentive plans described elsewhere in this prospectus or to cover tax withholding for grants pursuant to our equity incentive plans; (v) shares of our common stock acquired after the date of this offering and, unless the party to the lock-up agreement is one of our directors or officers, sale of shares of our common stock acquired in this offering; (vi) the establishment of a 10b5-1 trading plan under the Exchange Act; and (vii) the conversion of shares of our outstanding convertible preferred stock into shares of our common stock. The exceptions described in (i) through (iii) above are subject to a requirement that the transferee enter into a lockup agreement with the underwriters containing similar restrictions and the exceptions described in (i), (ii) and (iv) through (vi) above are subject to a requirement that no public announcement or filing under Section 16 of the Exchange Act shall be required or voluntarily made during the restricted period.

The representatives, in their sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time.

Prior to the offering, there has been no public market for the shares. The initial public offering price has been negotiated among us and the representatives. Among the factors to be considered in determining the initial public offering price of the shares, in addition to prevailing market conditions, will be our historical performance, estimates of the business potential and our earnings prospects, an assessment of our management and the consideration of the above factors in relation to market valuation of companies in related businesses.

We intend to apply to list our common stock on the Nasdaq Global Market under the symbol "NGM".

In connection with the offering, the underwriters may purchase and sell shares of our common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering, and a short position represents the amount of such sales that have not been covered by subsequent purchases. A "covered

short position" is a short position that is not greater than the amount of additional shares for which the underwriters' option described above may be exercised. The underwriters may cover any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to cover the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase additional shares pursuant to the option described above. "Naked" short sales are any short sales that create a short position greater than the amount of additional shares for which the option described above may be exercised. The underwriters must cover any such naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of our common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of our common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Purchases to cover a short position and stabilizing transactions, as well as other purchases by the underwriters for their own accounts, may have the effect of preventing or retarding a decline in the market price of our stock, and together with the imposition of the penalty bid, may stabilize, maintain or otherwise affect the market price of our common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. The underwriters are not required to engage in these activities and may end any of these activities at any time. These transactions may be effected on the Nasdaq Global Market, in the over-the-counter market or otherwise.

The underwriters do not expect sales to discretionary accounts to exceed 5% of the total number of shares offered.

We estimate that our total expenses of the offering, excluding underwriting discounts and commissions, will be approximately $.

We have agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act.

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services. Certain of the underwriters and their respective affiliates have provided, and may in the future provide, a variety of these services to us and to persons and entities with relationships with us, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the underwriters and their respective affiliates, officers, directors and employees may purchase, sell or hold a broad array of investments and actively trade securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments for their own account and for the accounts of their customers, and such investment and trading activities may involve or relate to our assets, securities and/or instruments (directly, as collateral securing other obligations or otherwise) and/or persons and entities with

relationships with us. The underwriters and their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a "Relative Member State") an offer to the public of our common shares may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of our common shares may be made at any time under the following exemptions under the Prospectus Directive:

- To any legal entity which is a qualified investor as defined in the Prospectus Directive;
- To fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the Representatives for any such offer; or
- In any other circumstances falling within Article 3(2) of the Prospectus Directive;

provided that no such offer or shares of our common stock shall result in a requirement for the publication by us or any Brazilian placement agent of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer to public" in relation to our common shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and our common shares to be offered so as to enable an investor to decide to purchase our common shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression "Prospectus Directive" means Directive 2003/71/EC (as amended), including by Directive 2010/73/EU and includes any relevant implementing measure in the Relevant Member State.

This European Economic Area selling restriction is in addition to any other selling restrictions set out below.

United Kingdom

In the United Kingdom, this prospectus is only addressed to and directed as qualified investors who are (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the Order); or (ii) high net worth entities and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons"). Any investment or investment activity to which this prospectus relates is available only to relevant persons and will only be engaged with relevant persons. Any person who is not a relevant person should not act or relay on this prospectus or any of its contents.

Canada

The securities may be sold in Canada only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106

Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions, and Ongoing Registrant Obligations. Any resale of the securities must be made in accordance with an exemption form, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this offering memorandum (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Hong Kong

The shares may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32 of the Laws of Hong Kong) ("Companies (Winding Up and Miscellaneous Provisions) Ordinance") or which do not constitute an invitation to the public within the meaning of the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong) ("Securities and Futures Ordinance"), (ii) to "professional investors" as defined in the Securities and Futures Ordinance and any rules made thereunder or (iii) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance, and no advertisement, invitation or document relating to the shares may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" in Hong Kong as defined in the Securities and Futures Ordinance and any rules made thereunder.

Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor (as defined under Section 4A of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA")) under Section 274 of the SFA, (ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to conditions set forth in the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned

by one or more individuals, each of whom is an accredited investor, the securities (as defined in Section 239(1) of the SFA) of that corporation shall not be transferable for 6 months after that corporation has acquired the shares under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer in that corporation's securities pursuant to Section 275(1A) of the SFA, (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA or (6) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore ("Regulation 32").

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is a trust (where the trustee is not an accredited investor (as defined in Section 4A of the SFA)) whose sole purpose is to hold investments and each beneficiary of the trust is an accredited investor, the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferable for 6 months after that trust has acquired the shares under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer that is made on terms that such rights or interest are acquired at a consideration of not less than S$200,000 (or its equivalent in a foreign currency) for each transaction (whether such amount is to be paid for in cash or by exchange of securities or other assets), (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA or (6) as specified in Regulation 32.

Japan

The securities have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended), or the FIEA. The securities may not be offered or sold, directly or indirectly, in Japan or to or for the benefit of any resident of Japan (including any person resident in Japan or any corporation or other entity organized under the laws of Japan) or to others for reoffering or resale, directly or indirectly, in Japan or to or for the benefit of any resident of Japan, except pursuant to an exemption from the registration requirements of the FIEA and otherwise in compliance with any relevant laws and regulations of Japan.

LEGAL MATTERS

Cooley LLP is serving as our counsel in this offering. Davis Polk & Wardwell LLP of Menlo Park, California is representing the underwriters in this offering. As of the date of this prospectus, entities comprised of partners and associates of Cooley LLP beneficially own 20,000 shares of our preferred stock, which will be converted into 20,000 shares of common stock in connection with of this offering.

EXPERTS

The consolidated financial statements of NGM Biopharmaceuticals, Inc. at December 31, 2016 and 2017, and for each of the two years in the period ended December 31, 2017, appearing in this prospectus and registration statement have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of our common stock offered by this prospectus. This prospectus, which constitutes part of that registration statement, does not contain all of the information set forth in the registration statement or the accompanying exhibits and schedules. Some items included in the registration statement are omitted from this prospectus in accordance with the rules and regulations of the SEC. For further information with respect to us and the common stock offered in this prospectus, we refer you to the registration statement and the accompanying exhibits and schedules. Statements contained in this prospectus regarding the contents of any contract, agreement or any other document are summaries of the material terms of these contracts, agreements or other documents. With respect to each of these contracts, agreements or other documents filed as an exhibit to the registration statement, reference is made to such exhibit for a more complete description of the matter involved.

A copy of the registration statement and the accompanying exhibits and schedules and any other document we file may be inspected without charge and copied at the SEC's public reference room at 100 F Street, N.E., Washington, D.C. 20549. The public may obtain information on the operation of the public reference room by calling the SEC at 1-800-SEC-0330. The SEC maintains a website that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC. The address of the SEC's website is http://www.sec.gov.

Upon completion of this offering, we will become subject to the information and periodic reporting requirements of the Exchange Act, and we will file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information will be available for inspection and copying at the public reference room and website of the SEC referred to above. We maintain a website at http://www.ngmbio.com. You may access our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, proxy statements and other information filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act with the SEC free of charge at our website as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our website is not part of this prospectus.

NGM BIOPHARMACEUTICALS, INC.
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of
NGM Biopharmaceuticals, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of NGM Biopharmaceuticals, Inc. (the Company) as of December 31, 2016 and 2017, and the related consolidated statements of operations, comprehensive loss, convertible preferred stock and stockholders' deficit and cash flows for the years then ended, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2016 and 2017, and the results of its operations and its cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2008.

Redwood City, California
August 10, 2018

NGM BIOPHARMACEUTICALS, INC.
CONSOLIDATED BALANCE SHEETS

(In Thousands, Except Per Share Amounts)

	December 31, 2016	December 31, 2017
Assets		
Current assets:		
Cash and cash equivalents	$ 45,463	$ 25,593
Short-term marketable securities	184,729	148,092
Related party receivable from collaboration	2,769	—
Prepaid expenses and other current assets	1,720	1,848
Total current assets	234,681	175,533
Long-term marketable securities	12,709	45,150
Property and equipment, net	27,194	24,873
Restricted cash	2,249	2,249
Other non-current assets	161	1,136
Total assets	$ 276,994	$ 248,941
Liabilities, convertible preferred stock and stockholders' deficit		
Current liabilities:		
Accounts payable	$ 8,424	$ 1,892
Accrued liabilities	8,934	11,686
Deferred rent, current	1,256	1,957
Deferred revenue, current	19,079	21,358
Total current liabilities	37,693	36,893
Deferred rent, non-current	16,861	14,904
Deferred revenue, non-current	41,542	22,742
Other liabilities	96	—
Early exercise stock option liability	872	385
Convertible preferred stock warrant liability	118	121
Total liabilities	97,182	75,045
Commitments and Contingencies (Note 6)		
Convertible preferred stock, $0.001 par value; 96,268,206 shares authorized at December 31, 2016 and 2017; 94,534,932 shares issued and outstanding at December 31, 2016 and 2017; aggregate liquidation preference of $277,774 at December 31, 2016 and 2017	294,874	294,874
Stockholders' deficit:		
Common stock, $0.001 par value; 129,000,000 shares authorized at December 31, 2016 and 2017; 12,185,937 and 12,437,613 shares issued and outstanding at December 31, 2016 and 2017, respectively	11	12
Additional paid-in capital	17,570	26,141
Accumulated other comprehensive loss	(102)	(431)
Accumulated deficit	(132,541)	(146,700)
Total stockholders' deficit	(115,062)	(120,978)
Total liabilities, convertible preferred stock and stockholders' deficit	$ 276,994	$ 248,941

See accompanying notes to the consolidated financial statements.

NGM BIOPHARMACEUTICALS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

(In Thousands, Except Per Share Amounts)

	Year Ended December 31,	
	2016	2017
Related party collaboration revenue	$ 81,435	$ 77,141
Other collaboration revenue	4,154	—
Total collaboration revenue	85,589	77,141
Operating expenses:		
Research and development	82,105	79,736
General and administrative	11,845	14,830
Total operating expenses	93,950	94,566
Loss from operations	(8,361)	(17,425)
Interest income	1,806	2,358
Other income (expense), net	133	(152)
Net loss before taxes	(6,422)	(15,219)
Provision for (benefit from) income taxes	500	(1,060)
Net loss	$ (6,922)	$ (14,159)
Net loss per common share, basic and diluted	$ (0.63)	$ (1.19)
Weighted average shares used to compute net loss per common share, basic and diluted	11,064,520	11,923,534
Pro forma net loss per common share, basic and diluted (unaudited)		$ (0.13)
Weighted average shares used to compute pro forma net loss per common share, basic and diluted (unaudited)		106,458,466

See accompanying notes to the consolidated financial statements.

NGM BIOPHARMACEUTICALS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

(In Thousands, Except Per Share Amounts)

	Year Ended December 31,	
	2016	2017
Net loss	$(6,922)	$(14,159)
Other comprehensive gain (loss), net of tax:		
Net unrealized gain (loss) on available-for-sale marketable securities	244	(329)
Total comprehensive loss	$(6,678)	$(14,488)

See accompanying notes to the consolidated financial statements.

NGM BIOPHARMACEUTICALS, INC.
CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT

(In Thousands)

	Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance at December 31, 2015	94,535	$294,874	10,359	$ 10	$ 9,749	$ (346)	$ (125,619)	$ (116,206)
Issuance of common stock to participants in 401(k) Matching Plan	—	—	17	—	65	—	—	65
Vesting of common stock from early exercises	—	—	820	—	1,589	—	—	1,589
Exercise of stock options	—	—	407	1	230	—	—	231
Stock-based compensation expense	—	—	—	—	5,937	—	—	5,937
Changes in unrealized gain (loss) on available-for-sale securities	—	—	—	—	—	244	—	244
Net loss	—	—	—	—	—	—	(6,922)	(6,922)
Balance at December 31, 2016	94,535	294,874	11,603	11	17,570	(102)	(132,541)	(115,062)
Issuance of common stock to participants in 401(k) Matching Plan	—	—	21	—	82	—	—	82
Vesting of common stock from early exercises	—	—	368	—	527	—	—	527
Exercise of stock options	—	—	218	1	338	—	—	339
Stock-based compensation expense	—	—	—	—	7,624	—	—	7,624
Changes in unrealized gain (loss) on available-for-sale securities	—	—	—	—	—	(329)	—	(329)
Net loss	—	—	—	—	—	—	(14,159)	(14,159)
Balance at December 31, 2017	94,535	$294,874	12,210	$ 12	$ 26,141	$ (431)	$ (146,700)	$ (120,978)

See accompanying notes to the consolidated financial statements.

NGM BIOPHARMACEUTICALS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

(In Thousands)

	Year Ended December 31,	
	2016	2017
Cash flows from operating activities		
Net loss	$ (6,922)	$ (14,159)
Adjustments to reconcile net loss to net cash used in operating activities		
Depreciation	3,534	6,441
Amortization of premium on marketable securities	1,088	241
Stock-based compensation expenses	6,018	7,717
Change in fair value of convertible preferred stock warrant liability	(2)	3
Other non-cash expenses	65	82
Changes in operating assets and liabilities		
Receivable from collaboration	215	—
Receivable from related party collaboration	(174)	2,769
Prepaid expenses and other assets	(302)	(1,103)
Accounts payable	2,750	(4,230)
Accrued expenses and other liabilities	1,176	2,603
Deferred rent	16,874	(1,256)
Deferred revenue	(23,051)	(16,521)
Net cash provided by (used in) operating activities	1,269	(17,413)
Cash flows from investing activities		
Purchase of marketable securities	(132,602)	(217,291)
Proceeds from sales and maturities of marketable securities	92,639	220,917
Purchase of property and equipment	(24,804)	(6,422)
Change in restricted cash	60	—
Net cash used in investing activities	(64,707)	(2,796)
Cash flows from financing activities		
Proceeds from issuance of common stock upon exercise of stock options	231	339
Net cash provided by financing activities	231	339
Net decrease in cash and cash equivalents	(63,207)	(19,870)
Cash and cash equivalents at beginning of period	108,670	45,463
Cash and cash equivalents at end of period	$ 45,463	$ 25,593
Supplemental disclosures of cash flow information:		
Income taxes paid	$ 10	$ 536
Non-cash investing and financing activities:		
Vesting of common stock from early exercises	1,589	527
Cost of property and equipment in accounts payable and accrued liabilities	$ 2,510	$ 208

See accompanying notes to the consolidated financial statements.

NGM BIOPHARMACEUTICALS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Organization and Description of Business

NGM Biopharmaceuticals, Inc. and its wholly owned subsidiary (collectively referred to as the "Company") is a research-driven, clinical-stage biopharmaceutical company committed to discovering and developing first-in-class therapeutics for major diseases with an initial focus on cardio-metabolic and liver diseases. The Company's current portfolio is composed of seven product candidates (NGM282, NGM313, NGM386, NGM395, NGM217, NGM120 and NGM621) focused on non-alcoholic steatohepatitis, or NASH, type 2 diabetes, obesity, oncology and age-related macular degeneration, or AMD.

The Company was incorporated in Delaware on December 20, 2007 and its headquarters are located at 333 Oyster Point Blvd. South San Francisco, California 94080. The Company operates in one business segment.

2. Summary of Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

The accompanying consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles (U.S. GAAP) and include the consolidated accounts of the Company and its subsidiary. During 2012, the Company established a wholly owned foreign subsidiary in Australia. All intercompany balances and transactions have been eliminated in consolidation.

Unaudited Pro Forma Stockholders' Equity and Net Loss per Common Share

The December 31, 2017 unaudited pro forma stockholders' equity has been prepared assuming upon the closing of the Company's initial public offering (IPO): (1) the automatic conversion of all outstanding shares of convertible preferred stock into shares of common stock and (2) the conversion of the warrant exercisable for convertible preferred stock outstanding as of December 31, 2017 into a warrant exercisable for shares of common stock, resulting in the reclassification of the related convertible preferred stock warrant liability to additional paid-in capital. The unaudited pro forma stockholders' equity does not include the shares expected to be sold and related proceeds to be received from the IPO or from the concurrent private placement of shares to Merck Sharp & Dohme Corp., (Merck). For purposes of the pro forma basic and diluted net loss per common share, all shares of convertible preferred stock have been treated as though they had been converted to common stock in all periods in which such shares were outstanding.

	Year ended December 31, 2017 (unaudited)
Net loss	$ (14,159)
Shares used in computing net loss per share—basic and diluted	11,923,534
Pro forma adjustment to reflect assumed conversion of convertible preferred stock	94,534,932
Shares used to compute pro forma net loss per share—basic and diluted	106,458,466
Pro forma net loss per share—basic and diluted	$ (0.13)

NGM BIOPHARMACEUTICALS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make judgments, assumptions and estimates that affect the reported amounts of assets, liabilities, revenues and expenses. Specific accounts that require management estimates include, but are not limited to, stock-based compensation, research and development periods under multiple element agreements, the valuation of convertible preferred stock warrants, the fair value of convertible preferred and common stock, contract manufacturing accruals and clinical trial accruals. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results could differ materially from those estimates.

Need for Additional Capital

Since inception, the Company has incurred net losses and negative cash flow from operations. During the years ended December 31, 2016 and 2017, the Company incurred a net loss of $6.9 million and $14.2 million, respectively. At December 31, 2017, the Company had an accumulated deficit of $146.7 million and does not expect to experience positive cash flows from operations in the near future. The Company had $218.8 million of cash, cash equivalents and marketable securities at December 31, 2017. Based on the Company's business plan, management believes this is sufficient to meet its obligations for at least the next twelve months from the issuance date of these consolidated financial statements.

Fair Value of Financial Instruments

The carrying amounts of cash and cash equivalents, receivables from collaborations, the related party receivable from collaboration, and other current assets and liabilities approximate their respective fair values because of the short-term nature of those instruments. Fair value accounting is applied to the convertible preferred stock warrant liabilities that are recorded at their estimated fair value in the consolidated financial statements.

Cash and Cash Equivalents

Cash and cash equivalents are stated at fair value. Cash equivalents relate to securities having an original maturity of three months or less at the time of purchase. The Company limits its credit risk associated with cash and cash equivalents by placing its investments with a bank it believes is highly creditworthy and with highly rated money market funds. As of December 31, 2016 and 2017, cash and cash equivalents consisted of bank deposits and investments in money market funds.

Marketable Securities

The Company determines the appropriate classification of its marketable securities at the time of purchase and re-evaluates such designation at each balance sheet date. All of the Company's securities are considered as available-for-sale and carried at estimated fair values and reported in cash equivalents, short-term marketable securities or long-term marketable securities. Unrealized gains and losses on available-for-sale securities are excluded from net loss and reported in accumulated other comprehensive loss as a separate component of stockholders' deficit. Other income (expense), net, includes interest, amortization of purchase premiums and accretion of purchase discounts, realized gains and losses on sales of securities and other-than-temporary declines in the fair value of securities, if any. The cost of securities sold is based on the specific identification method.

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The Company regularly reviews all of its investments for other-than-temporary declines in fair value. This review includes the consideration of the cause of the impairment, including the creditworthiness of the security issuers, the number of securities in an unrealized loss position, the severity and duration of the unrealized losses, whether the Company has the intent to sell the securities and whether it is more likely than not that the Company will be required to sell the securities before the recovery of their amortized cost basis. When the Company determines that the decline in fair value of an investment is below its carrying value and this decline is other-than-temporary, the Company reduces the carrying value of the security it holds and records a loss for the amount of such decline.

Restricted Cash

As of December 31, 2016 and 2017, the Company had $60,000 of restricted cash classified as a current asset and $2.3 million of restricted cash classified as a non-current asset. The restricted cash serves as collateral for facility leases entered into in 2010 and 2015 (Note 6). Restricted cash is classified as current if the collateral will be returned in less than 12 months.

Concentration of Credit and Other Risks

Cash and cash equivalents and marketable securities from the Company's available-for-sale and marketable security portfolio potentially subject the Company to concentrations of credit risk. The Company invests in money market funds and marketable securities through custodial relationships with major U.S. and Australian banks. Under its investment policy, the Company limits amounts invested in such securities by credit rating, maturity, industry group, investment type and issuer, except for securities issued by the U.S. government. The Company is not exposed to any significant concentrations of credit risk from these financial instruments.

Receivables and related party receivables from collaborations (Note 6) are typically unsecured. Accordingly, the Company may be exposed to credit risk generally associated with its current collaboration agreement with Merck and any future collaboration agreements with other collaboration partners. To date, the Company has not experienced any losses related to these receivables.

Merck accounted for 95% and 100% of the Company's collaboration revenue for the years ended December 31, 2016 and 2017, respectively.

Property and Equipment, Net

Property and equipment is recorded at cost and consists of computer equipment, laboratory equipment and office furniture and leasehold improvements. Maintenance and repairs, and training on the use of equipment, are charged to expense as incurred. Costs that improve assets or extend their economic lives are capitalized. Depreciation is recognized using the straight-line method based on an estimated useful life of the asset, which is as follows:

Computer equipment	3 years
Laboratory equipment and office furniture	3 years
Leasehold improvement	Shorter of life of asset or lease term

Leases

The Company's lease agreement for its laboratory and office facilities are classified as operating leases. Rent expense is recognized on a straight-line basis over the term of the lease. Incentives

granted under the Company's facilities leases, including allowances to fund leasehold improvements and rent holidays, are capitalized and are recognized as reductions to rental expense on a straight-line basis over the term of the lease.

Impairment of Long-Lived Assets

Long-lived assets, such as property and equipment, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated undiscounted future cash flows, an impairment charge is recognized as the amount by which the carrying amount of the asset exceeds the estimated fair value of the asset. As of December 31, 2016 and 2017 and during the twelve months then ended, no revision to the remaining useful lives or write-down of long-lived assets was required.

Income Taxes

Income taxes are accounted for under the liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to the differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and the operating loss and tax credit carryforwards. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized. Deferred tax assets and liabilities are measured at the balance sheet date using the enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the period such tax rate changes are enacted.

Convertible Preferred Stock Warrant

Freestanding warrants to purchase the Company's convertible preferred stock are classified as a liability on the consolidated balance sheets. The convertible preferred stock warrants are recorded as a liability because the underlying shares of convertible preferred stock are contingently redeemable, which, therefore, may obligate the Company to transfer assets at some point in the future to settle these warrants. As a result, the warrants are subject to remeasurement at each balance sheet date, with changes in estimated fair value recognized as a component of total other income (expense) in the Company's consolidated statements of operations. The Company will continue to adjust the liability for changes in estimated fair value until the earlier of the expiration, exercise, or conversion of the warrant upon the completion of a liquidation event, including the completion of an IPO. Upon the Company's IPO, the convertible preferred stock warrant liability will be subject to a final adjustment to the estimated fair value and will then be reclassified to additional paid-in capital.

Revenue Recognition

All of the Company's revenue to date has been generated from its collaboration agreements. Revenue from collaboration agreements may include non-refundable upfront license fees, partial or complete reimbursement of research and development costs, contingent consideration payments based on the achievement of defined collaboration objectives and royalties on sales of commercialized products. Revenue from research activities earned under collaboration arrangements are recognized when there is persuasive evidence that an arrangement exists, services have been rendered, the price

is fixed or determinable and collectability is reasonably assured. Revenue generated from the Company's collaboration arrangements is not subject to repayment. The Company's obligations under collaboration agreements may include the transfer of intellectual property rights in the form of licenses, obligations to provide research and development services and obligations to participate on certain development committees with the collaboration party. The Company makes judgments that affect the period over which the Company recognizes revenue. At each reporting period, the Company reviews its estimated period of performance for its collaboration and license revenue based on the progress under the arrangement and accounts for the impact of any changes in estimated periods of performance on a prospective basis. The Company records amounts received prior to satisfying the above revenue recognition criteria as deferred revenue until all applicable revenue recognition criteria are met. Deferred revenue represents the portion of research or license payments received that have not been earned.

For revenue agreements with multiple-element arrangements, such as license and development agreements, the Company allocates revenue to each non-contingent element based on the relative selling price of each element. When applying the relative selling price method, the Company determines the selling price for each deliverable using vendor-specific objective evidence or third-party evidence. If neither exists, the Company uses the best estimate of selling price for that deliverable. Revenue allocated is then recognized when all of the following criteria are met: persuasive evidence of an arrangement exists; transfer of technology has been completed or services have been rendered; the price to the customer is fixed or determinable and collectability is reasonably assured.

Payments that are contingent upon the achievement of a substantive milestone are recognized entirely as revenue in the period in which the milestone is achieved. A milestone is defined as an event: (a) that can only be achieved based in whole or in part on either (1) the Company's performance or (2) on the occurrence of a specific outcome resulting from the Company's performance; (b) for which there is substantive uncertainty at the date the arrangement is entered into that the event will be achieved; and (c) that would result in additional payments being due to the entity. A milestone is considered substantive if the consideration earned from the achievement of the milestone meets all of the following criteria: (a) the consideration is commensurate with either (1) the Company's performance to achieve the milestone, or (2) the enhancement of the value of the delivered item(s) as a result of a specific outcome resulting from the Company's performance to achieve the milestone; (b) the consideration relates solely to past performance; and (c) the consideration is reasonable relative to all of the deliverables and payment terms (including other potential milestone consideration) within the arrangement. To the extent that non-substantive milestones are achieved and the Company has remaining performance obligations, payments in respect of such milestones are deferred and recognized as revenue over the estimated remaining period of performance. If there were no remaining performance obligations, the Company would recognize the revenue in the period it is earned.

Payments related to options to license the Company's program candidates are considered substantive if, at the inception of the arrangement, the Company is at risk as to whether the collaboration partner will choose to exercise the option. Factors that the Company considers in evaluating whether an option is substantive include the overall objective of the arrangement, the benefit the collaborator might obtain from the arrangement without exercising the option, the cost to exercise the option and the likelihood that the option will be exercised. For arrangements under which an option is considered substantive, the Company does not consider the item underlying the option to be a deliverable at the inception of the arrangement and the associated option fees are not included in allocable arrangement consideration, assuming the option is not priced at a significant and incremental discount. Conversely, for arrangements under which an option is not considered substantive or if an

option is priced at a significant and incremental discount, the Company would consider the item underlying the option to be a deliverable at the inception of the arrangement and a corresponding amount would be included in allocable arrangement consideration.

Revenue related to research collaboration services and grants are recognized as research costs are incurred and/or the underlying services are performed over the term as specified in the related agreements.

Research and Development

Research and development costs are expensed as incurred. Research and development expenses primarily include salaries and benefits for medical, clinical, quality, preclinical, manufacturing, and research personnel, costs related to research activities, preclinical studies, clinical trials, drug manufacturing expenses, and allocated overhead and facility occupancy costs. The Company accounts for non-refundable advance payments for goods or services that will be used in future research and development activities as expenses when the goods have been received or when the service has been performed rather than when the payment is made.

Clinical trial costs are a component of research and development expenses. The Company expenses costs for its clinical trial activities performed by third parties, including clinical research organizations and other service providers, as they are incurred, based upon estimates of the work completed over the life of the individual study in accordance with associated agreements. The Company uses information it receives from internal personnel and outside service providers to estimate the clinical trial costs incurred.

Stock-Based Compensation

The Company values stock-based payments to employees on the grant date of each award and recognizes the estimated fair value of such awards over the period during which the employee is required to provide service in exchange for the award, which is generally the vesting period of each award. Stock-based payments to consultants are subject to periodic remeasurement over their vesting terms. Stock-based payments are valued using the Black-Scholes option-pricing model. Because non-cash stock-based compensation expense is based on awards ultimately expected to vest, it is reduced by an estimate for future forfeitures. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from estimates.

Foreign Currency Transactions

The functional currency of NGM Biopharmaceuticals Australia Pty Ltd., a wholly owned subsidiary, is the U.S. dollar. Accordingly, all monetary assets and liabilities of the subsidiary are remeasured into U.S. dollars at the current period-end exchange rates and non-monetary assets are remeasured using historical exchange rates. Income and expense elements are remeasured to U.S. dollars using the average exchange rates in effect during the period. Remeasurement gains and losses are recorded as other income (expense). During the years ended December 31, 2016 and 2017, the Company recorded a foreign exchange remeasurement gain of $19,000 and loss of $0.1 million, respectively.

The Company is subject to foreign currency risk with respect to its clinical and manufacturing contracts denominated in currencies other than the U.S. dollar, primarily British Pounds, Swiss Francs,

and the Euro. Payments on contracts denominated in foreign currencies are made at the spot rate on the day of payment. Changes in the exchange rate between billing dates and payment dates are recorded to other income (expense), net on the consolidated statements of operations. During the years ended December 31, 2016 and 2017, the Company recorded a foreign exchange transaction gain of $19,000 and loss of $37,000, respectively.

Comprehensive Loss

Comprehensive loss is comprised of net loss and certain changes in equity that are excluded from net loss. For the years ended December 31, 2016 and 2017, the difference between comprehensive loss and net loss consisted of changes in net unrealized gain on marketable securities of $0.2 million, and changes in net unrealized loss on marketable securities of $0.3 million, respectively.

Net Loss per Common Share

Basic net loss per common share is calculated by dividing net loss by the weighted-average number of common shares outstanding during the period, less shares subject to repurchase, and excludes any dilutive effects of stock-based awards and warrants. Diluted net loss per common share is computed giving effect to all potentially dilutive common shares, including common stock issuable upon exercise of stock options, and unvested restricted common stock and stock units. As the Company had net losses for the years ended December 31, 2016 and 2017, all potential common shares were determined to be anti-dilutive.

The following table sets forth the computation of net loss per common share (in thousands, except per share):

	Year Ended December 31,	
	2016	2017
Numerator:		
Net loss	$ (6,922)	$ (14,159)
Denominator:		
Weighted-average number of common shares used in calculating net income per share —basic and diluted	11,064,520	11,923,534
Net loss per share—basic and diluted	$ (0.63)	$ (1.19)

Potentially dilutive securities that were not included in the diluted per share calculations because they would be anti-dilutive were as follows:

	Year Ended December 31,	
	2016	2017
Convertible preferred stock	94,534,932	94,534,932
Options to purchase common stock	14,328,856	16,937,403
Warrants to purchase convertible preferred stock	39,274	39,274
Total	108,903,062	111,511,609

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Segment and Geographical Information

The Company operates in one segment. Substantially all of the Company's long-lived assets are based in the United States. Long-lived assets are primarily comprised of property and equipment. For the years ended December 31, 2016 and 2017, the Company's revenues were entirely within the United States based upon the location of the customers.

Recent Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by us as of the specified effective date. Unless otherwise discussed, the impact of recently issued standards that are not yet effective will not have a material impact on our consolidated financial statements upon adoption. Under the Jumpstart Our Business Startups Act of 2012, as amended (the JOBS Act), we meet the definition of an emerging growth company, and have elected the extended transition period for complying with new or revised accounting standards pursuant to Section 107(b) of the JOBS Act.

Adopted Accounting Pronouncements

In November 2015, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2015-17, *Income Taxes (Topic 740)—Balance Sheet Classification of Deferred Taxes* (ASU 2015-17). This ASU simplifies the presentation of deferred income taxes by requiring non-current classification in a classified statement of financial position. ASU 2015-17 is effective for financial statements issued for fiscal years beginning after December 15, 2017. ASU 2015-17 may be either applied prospectively to all deferred tax assets and liabilities or retrospectively to all periods presented. The Company adopted ASU 2015-17 as of December 31, 2017; however, there was no impact on the Company's consolidated financial statements as a result of adopting ASU 2015-17.

In March 2016, the FASB issued ASU No. 2016-09, *Compensation—Stock Compensation (Topic 718)—Improvements to Employee Share Based Payment Accounting* as part of the FASB simplification initiative. The new standard provides for changes to accounting for stock compensation including 1) excess tax benefits and tax deficiencies related to share based payment awards will be recognized as income tax expense in the reporting period in which they occur; 2) excess tax benefits will be classified as an operating activity in the statement of cash flows; 3) the option to elect to estimate forfeitures or account for them when they occur; and 4) increase tax withholding requirements threshold to qualify for equity classification. The Company adopted ASU 2016-09 as of January 1, 2018; however, there was no impact on the Company's consolidated financial statements as a result of adopting ASU 2016-09.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation—Stock Compensation (Topic 718): Scope Modification Accounting*. ASU 2017-09 defines which changes to the terms or conditions of a share-based payment award require the Company to apply modification accounting. The Company adopted ASU 2017-09 on January 1, 2018; however, there was no impact on the Company's consolidated financial statements as a result of adopting ASU 2017-09.

Recent Accounting Pronouncements

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers* (Topic 606), which supersedes the revenue recognition requirements in Accounting Standards

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Codification (ASC) 605, Revenue Recognition. This ASU is based on the principle that revenue is recognized to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The ASU also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to obtain or fulfill a contract. The ASU's effective date will be for annual reporting periods beginning after December 15, 2018 and interim periods beginning after December 15, 2019 using one of two retrospective application methods. The Company is currently assessing the impact of adoption on its consolidated financial statements and developing a plan for transition to the new guidance. The Company is currently at the early stages of analyzing its research collaboration, product development and license agreement with Merck to determine the differences in the accounting treatment under ASU 2014-09 compared to the current accounting treatment. The consideration the Company is eligible to receive under this agreement includes upfront payments, research and development funding, option payments, milestone payments, and royalties. The new revenue recognition standard differs from the current accounting standard in many respects, such as in the accounting for variable consideration and the measurement of progress toward completion of performance obligations. While the Company has not completed an assessment of the impact or selected the method of adoption, the adoption of ASU 2014-09 may have a material effect on its consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases* (ASU 2016-02). ASU 2016-02 is aimed at making leasing activities more transparent and comparable, and requires substantially all leases be recognized by lessees on their balance sheet as a right-of-use asset and corresponding lease liability, including leases currently accounted for as operating leases. ASU 2016-02 is effective for all annual reporting periods beginning after December 15, 2019. Early adoption is permitted. The Company is currently evaluating the impact that the adoption of ASU 2016-02 will have on its financial statements and related disclosures.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows (Topic 230)—Restricted Cash*, to clarify the presentation of the change in restricted cash on the statement of cash flows. The new standard clarifies the FASB's position that changes to restricted cash are not reflective of an entity's operating, investing or financing activities, and therefore should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The ASU is effective for fiscal years beginning after December 15, 2018. The Company is currently assessing the impact of this ASU on the presentation of its consolidated statement of cash flows.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation—Stock Compensation (Topic 718): Improvements to Non-Employee Share-Based Payment Accounting* as part of the FASB simplification initiative. The new standard expands the scope of Topic 718, allowing the Company to apply the requirements of Topic 718 to certain non-employee awards to acquire goods and services from non-employees. This ASU will be effective for the Company for fiscal years beginning after December 15, 2019, and interim periods within fiscal years beginning after December 15, 2020, with early adoption permitted. The Company is currently assessing the impact of this ASU on its consolidated financial statements.

3. Fair Value Measurements

Financial assets and liabilities are recorded at fair value. The carrying amount of certain financial instruments, including cash and cash equivalents, receivable from collaboration, related party

receivable from collaboration and other current assets and liabilities approximate fair value due to their relatively short maturities. Assets and liabilities recorded at fair value on a recurring basis in the balance sheets are categorized based upon the level of judgment associated with the inputs used to measure their fair values. Fair value accounting is applied to the convertible preferred stock warrant liabilities that are recorded at their estimated fair value in the consolidated financial statements.

The FASB defined fair value as the exchange price that would be received for an asset or paid to transfer a liability, or an exit price, in the principal or most advantageous market for that asset or liability in an orderly transaction between market participants on the measurement date, and established a fair value hierarchy that requires an entity to maximize the use of observable inputs, where available, and minimize the use of unobservable inputs when measuring fair value. The FASB set forth three levels of inputs that may be used to measure fair value:

Level 1: Quoted prices in active markets for identical assets or liabilities.

Level 2: Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3: Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability.

To date, the Company has not recorded any impairment charges on marketable securities related to other-than-temporary declines in market value. In determining whether a decline is other than temporary, the Company considers various factors including the length of time and extent to which the market value has been less than cost, the financial condition and near-term prospects of the issuer and the Company's intent and ability to retain its investment in the issuer for a period of time sufficient to allow for any anticipated recovery in market value.

The Company estimates the fair values of investments in corporate agency bond securities, commercial paper and government agencies securities using level 2 inputs, by taking into consideration valuations obtained from third-party pricing services. The pricing services utilize industry standard valuation models, including both income- and market-based approaches, for which all significant inputs are observable, either directly or indirectly, to estimate fair value. These inputs include reported trades of and broker/dealer quotes on the same or similar securities, issuer credit spreads, benchmark securities, prepayment/default projections based on historical data and other observable inputs.

For the year ended December 31, 2016, the Company realized a gain of $12,000 on the sale and maturity of available-for-sale securities. For the year ended December 31, 2017, the Company realized a gain of $2,000 on the sale and maturity of available-for-sale securities.

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Cash equivalents and marketable securities, all of which are classified as available-for-sale securities consisted of the following (in thousands):

	At December 31, 2016			
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Money market funds	$ 28,525	$ —	$ —	$ 28,525
Corporate and agency bonds	108,589	12	(92)	108,509
Commercial paper	8,977	—	—	8,977
U.S. government agencies securities	79,974	13	(35)	79,952
Total	$226,065	$ 25	$ (127)	$225,963
Classified as:				
Cash and cash equivalents				$ 28,525
Short-term marketable securities				184,729
Long-term marketable securities				12,709
Total cash equivalents and marketable securities				$225,963

	At December 31, 2017			
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Money market funds	$ 18,263	$ —	$ —	$ 18,263
Corporate and agency bonds	93,025	—	(301)	92,724
Commercial paper	34,393	—	—	34,393
U.S. government agencies securities	66,256	—	(131)	66,125
Total	$211,937	$ —	$ (432)	$211,505
Classified as:				
Cash and cash equivalents				$ 18,263
Short-term marketable securities				148,092
Long-term marketable securities				45,150
Total cash equivalents and marketable securities				$211,505

Cash and cash equivalents in the table above excludes cash on deposit with banks of $17.0 million as of December 31, 2016 and $7.3 million as of December 31, 2017.

As of December 31, 2016 and 2017, the Company's marketable securities had the following remaining contractual maturities (in thousands):

	At December 31, 2016	
	Amortized Cost	Fair Value
Less than one year	$ 184,815	$184,729
Greater than one year but less than five years	12,725	12,709
Total	$ 197,540	$197,438

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	At December 31, 2017	
	Amortized Cost	Fair Value
Less than one year	$ 148,280	$148,092
Greater than one year but less than five years	45,394	45,150
Total	$ 193,674	$193,242

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following table sets forth the estimated fair value of the Company's financial assets and liabilities that were measured at fair value on a recurring basis as of December 31, 2016 and 2017 (in thousands):

	Fair Value Measurements at December 31, 2016			
	Total	Level 1	Level 2	Level 3
Assets				
Money market funds	$ 28,525	$28,525	$ —	$ —
Corporate and agency bonds	108,509	—	108,509	—
Commercial paper	8,977	—	8,977	—
U.S. government agencies securities	79,952	—	79,952	—
	$225,963	$28,525	$197,438	$ —
Liabilities				
Convertible preferred stock warrant liability	$ 118	$ —	$ —	$ 118
	$ 118	$ —	$ —	$ 118

	Fair Value Measurements at December 31, 2017			
	Total	Level 1	Level 2	Level 3
Assets				
Money market funds	$ 18,263	$18,263	$ —	$ —
Corporate and agency bonds	92,724	—	92,724	—
Commercial paper	34,393	—	34,393	—
U.S. government agencies securities	66,125	—	66,125	—
	$211,505	$18,263	$193,242	$ —
Liabilities				
Convertible preferred stock warrant liability	$ 121	$ —	$ —	$ 121
	$ 121	$ —	$ —	$ 121

There were no transfers of assets or liabilities between the fair value measurement levels during the years ended December 31, 2016 and 2017.

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The following table provides a summary of changes in the fair value of the Company's convertible preferred stock warrant liability (in thousands):

Fair Value Using Level 3 Inputs	Amounts
Balance at December 31, 2015	$ 120
Change in fair value of warrant liability included in other income (expense), net	(2)
Balance at December 31, 2016	118
Change in fair value of warrant liability included in other income (expense), net	3
Balance at December 31, 2017	$ 121

The original estimated fair value of the convertible preferred stock warrants of approximately $28,000, issued in February 2009 in conjunction with entering into a loan and security agreement with a lender, was measured upon issuance using the Black-Scholes option-pricing model. The Company recorded other income of $2,000 and other expense of $3,000 for the change in estimated fair value of the warrant liabilities for the years ended December 31, 2016 and 2017, respectively. The inputs used in the determination of the fair value of the warrants as of December 31, 2017 used an estimated fair value per share of the Company's common stock fair value per share, one year for the expected term of the warrant, 65.71% for the stock value volatility using publicly traded peer company volatility as a basis, and 1.76% for the risk-free interest rate on U.S. Treasury securities at 1-year constant maturity.

4. Balance Sheet Components

Property and Equipment

Property and equipment consist of the following (in thousands):

	December 31,	
	2016	2017
Computer equipment	$ 738	$ 911
Laboratory equipment and office furniture	12,551	16,715
Leasehold improvements	22,205	22,300
Construction in process	552	127
	36,046	40,053
Less accumulated depreciation and amortization	(8,852)	(15,180)
Total property and equipment, net	$27,194	$ 24,873

Depreciation expense was approximately $3.5 million and $6.4 million for the years ended December 31, 2016 and 2017, respectively.

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Accrued Liabilities

Accrued liabilities consist of the following (in thousands):

	December 31,	
	2016	2017
Accrued expenses	$2,189	$ 3,569
Clinical trials and research and development costs	2,184	3,239
Personnel-related costs	3,219	3,784
Manufacturing costs	1,342	1,094
Total accrued liabilities	$8,934	$11,686

5. Research Collaboration and License Agreements

Summary of Collaboration Revenue

The Company recognized revenue from its collaboration and license agreements as follows (in thousands):

	Year Ended December 31,	
	2016	2017
Related party collaboration revenue		
Recognition of upfront license fee	$18,800	$18,800
Collaboration service revenue	62,635	58,341
Total related party collaboration revenue	81,435	77,141
Other collaboration revenue		
Recognition of upfront license fee	3,773	—
Collaboration service revenue	381	—
Total other collaboration revenue	4,154	—
Total collaboration revenue	$85,589	$77,141

JDRF

In September 2011, the Company entered into a Research, Development and Commercialization Agreement with JDRF International, or JDRF, to conduct a research program to discover potential therapeutics for the treatment of diabetes. Under the terms of the agreement, the Company was eligible to receive research funding of up to $1.8 million. This research funding has been recognized in the service period in which it was earned. During the years ended December 31, 2016 and 2017 the Company did not recognize any revenue from this agreement.

MedImmune

In June 2013, the Company entered into a collaboration agreement with MedImmune Limited, or MedImmune, to identify and advance therapeutic agents for diabetes and/or obesity. Under the terms of the agreement, the Company received an upfront payment of $25 million, which was recognized as revenue on a straight-line basis over the three-year duration of the collaboration. In June 2016, the research term in the collaboration agreement with MedImmune expired, and the Company and MedImmune terminated the agreement in August 2016.

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Merck

In February 2015, the Company entered into a research collaboration, product development and license agreement with Merck, covering the discovery, development and commercialization of novel therapies across a range of therapeutic areas (Merck Collaboration Agreement). The collaboration includes an exclusive worldwide license to the GDF15 program, comprising NGM386 and NGM395 and other GDF15 agonist compounds; the product candidates from this program that are being evaluated for the treatment of diabetes, obesity and non-alcoholic steatohepatitis; and a broad, multi-year drug discovery and early development program financially supported by Merck but scientifically directed by the Company. The goal of the drug discovery and early development program is to identify and develop, through human proof-of-concept studies, multiple product candidates for various therapeutic areas. For those compounds resulting from the research and development program that progress through human proof-of-concept studies, Merck has a one-time option to obtain an exclusive, worldwide license, within 60 days after receipt of the complete data package from the Company with respect to the option compound. If Merck exercises its option, the Company in turn has the right, at the start of the first Phase 3 clinical study for that compound, to elect to participate in a worldwide cost and profit share with Merck, as well as the option to co-detail the compound in the United States, or the Company can elect instead to receive milestones and royalties from Merck based on its further development and commercialization of the compound. If the Company elects to participate in the cost and profit share, subject to certain limitations, Merck will advance to the Company a portion of its share of the overall development costs, which Merck will recoup from the Company's share of any profit ultimately resulting from sales of the compound or, if unsuccessful, other compounds that reach commercialization.

Research and Early Development Program. Pursuant to the collaboration agreement, the Company determines the scientific direction and areas of therapeutic interest, with input from Merck, and is primarily responsible for the conduct of all research, preclinical and early clinical development activities, through human proof of concept. The Company makes the final determinations as to which compounds to advance into and through initial clinical studies, which to progress into human proof-of-concept studies and the design of any such studies, with input from Merck through various governance committees. The Company may terminate its participation in any of the governance committees by providing written notice to Merck of its intention to disband and no longer participate. Under the agreement, Merck reimburses the internal and external costs of the Company's research and early development activities (research phase) in an amount up to $50 million per year, based on an estimated annual budget. If the Company exceeds this budget in a particular year, and if the program is sufficiently advanced as of that time, Merck will fund up to an additional $25 million each year for use in funding IND-enabling or later-staged activities or will provide the Company with the equivalent value in in-kind services for preclinical and clinical development activities.

Merck has the option to extend the initial five-year research phase for two additional two-year consecutive periods by paying a fee for each extension. Exercising the option for the first of the two-year periods is required to be communicated by Merck to the Company by March 17, 2019. The level of research funding during the research phase extensions will be negotiated at the time of the extension, subject to certain minimum and maximum funding limits based on a percentage of the then-existing funding. At the end of any research phase, Merck has the right to either require the Company to continue to conduct research and development activities with respect to certain of the then-existing programs for up to three years (tail period), by agreeing to pay all of the Company's internal and external costs, or to take over such selected programs and conduct such research and development activities itself, at its own cost, during the tail period.

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Merck Option to License the Company's Programs. Upon completion of a human proof-of-concept study for a particular compound, regardless of the results of such study, Merck has the one-time option to obtain an exclusive, worldwide license, on specified terms, to that compound, as well as to other molecules that are directed against the same target in the same manner (Optioned Program). If Merck exercises its license option, Merck will be responsible, at its own cost, for any further development and commercialization activities for compounds within that Optioned Program, subject to the Company's options to cost and profit share worldwide and to co-detail those compounds in the United States, as further described below. If Merck does not exercise its license option with respect to a particular compound within 60 days, the Company will retain all rights to research, develop and commercialize that compound and its related molecules on a worldwide basis at the Company's expense, either alone or in partnership with a third party, subject to the payment to Merck of low single digit percentage royalties on any commercial sales of any resulting products.

Company Option to Elect Cost and Profit Share and Merck Financial Assistance. If Merck exercises its license option, then at the point where it has advanced the licensed compound to its first Phase 3 clinical study, the Company has the option exercisable for a period of 60 days to share up to 50% of the costs and profits with Merck on that compound (NGM Optioned Products). As part of the Company's election to exercise the option to cost and profit share, the Company will also select the percentage share, up to 50%, that it desires to fund of the total global costs of developing and, if approved, commercializing that NGM Optioned Product. The percentage of any profits the Company will receive from sales of the NGM Optioned Product will be the same as the percentage share the Company elects to contribute to the total global costs of developing the product. The Company's right to participate in cost and profit sharing for each of the compounds that Merck licenses is subject to the following limitation: if, at the point in time when the Company is able to exercise its option for a licensed compound, the actual costs the Company has incurred, plus the prospective costs allocated to the Company across all NGM Optioned Products, plus the costs the Company is electing to incur if it exercises its option for the compound, reaches ascending thresholds, depending on the term of the research phase of the agreement, in the low single digit billions of dollars, the Company will not be able to exercise its option on any further licensed compounds that Merck takes forward.

Pursuant to the collaboration agreement, at the Company's election to cost and profit share on a NGM Optioned Product, Merck will advance to the Company a specified portion of the expected global costs for that NGM Optioned Product. These advances are subject to an aggregate cap across all NGM Optioned Products over the term of the collaboration.

Co-Detailing Rights in the United States. For each NGM Optioned Product, the Company also has the option to participate in a portion of the commercial promotion (co-detailing) to prescribers in the United States of the NGM Optioned Product by fielding its own commercial sales force. The Company will be required to make this election prior to receiving regulatory approval in the U.S. for the NGM Optioned Product. The specifics of the participation in co-detailing will be determined by the parties according to guidelines set out in the collaboration agreement. If the Company elects to co-detail with Merck, the Company's costs are included in the overall shared commercialization costs, but it will not share in any greater portion of the profits than it otherwise would be entitled to for that NGM Optioned Product.

Small Molecule Research and Development. Under the collaboration agreement, the Company also granted Merck a worldwide, exclusive right to conduct research and development on small molecule compounds generated by Merck that have specified activity against any target that the Company is researching or developing under the research phase and about which the Company has

generated unique biological insights (Small Molecule Program). If Merck ultimately does not exercise its license option to the compound the Company has taken through a human proof-of-concept study that is directed to any such target, Merck's research license for its own small molecule program will become non-exclusive, but it will retain an exclusive license to any small molecule compounds that it has, as of that time, identified and developed. Merck has sole responsibility for the research and development of any of these small molecule compounds, at its own cost. The Company is eligible to receive milestone and royalty payments on small molecule compounds that are developed by Merck under the Company's license, in some cases at the same rates as those the Company is eligible to receive from Merck for a licensed program originating from the Company's own research and development efforts, provided that, but for use of the Company's proprietary information, Merck would not have discovered such small molecule compounds. However, the Company will not have the option to cost and profit share or the option to co-detail those small molecule products.

Upfront payment; Series E Convertible Preferred Stock Purchase Agreement, Extension of Research Phases(s) and Private Placement. Under the terms of the collaboration agreement, the Company received an upfront payment of $94.0 million. In addition, Merck entered into a stock purchase agreement to purchase 17,666,666 shares of Series E convertible preferred stock at a price of $6.00 per share, resulting in net proceeds of approximately $105.9 million. In April 2015, the Company received the $94.0 million upfront payment.

In connection with the Series E convertible preferred stock purchase agreement, the Company entered into a Side Letter Agreement whereby Merck has the irrevocable option to purchase or, if it does not, the Company has the irrevocable option to require Merck to purchase an additional amount of the Company's common stock pursuant to a private placement conducted in parallel with its IPO, up to a limit of the number of shares that will result in Merck owning up to approximately 19.9% of the Company's outstanding shares, at the same price per share as offered to the public. If Merck elects to extend the research phase of the collaboration until March 17, 2022, it has the option to purchase an additional $5.0 million of the Company's common stock at a price per share equal to the last closing price of the Company's shares on the date it notifies the Company of its desire to exercise such option and, if Merck elects again to extend the research phase to March 17, 2024, it has an option to purchase another $5.0 million of the Company's common stock on the same terms; with both options subject to an overall cap on Merck's ownership interest of 19.9%.

Standstill, Lock-Up and Voting Agreements. The Side Letter Agreement also includes standstill provisions providing that for the period ending on the earlier of the end of the initial five-year research term, the announcement of the Company's intent to consummate a change in control transaction (subject to certain exceptions) or the termination of the collaboration agreement, neither Merck nor its representatives will, directly or indirectly, among other things: (i) acquire any of the Company's securities to the extent it would result in Merck owning more than 19.9% of the Company's shares, (ii) solicit proxies for the Company's securities or (iii) participate in a business combination involving the Company, take any action that might result in the Company having to make a public announcement about (i) or (ii) or seek to influence the Company's management or policies, except that Merck is not precluded from making confidential, non-public proposals to the Company or third parties with the Company's express consent. In addition, during the period that ends on the earlier of the end of the initial five-year research term, the announcement of the Company's intent to consummate a change in control transaction or the date on which Merck's ownership of the Company's securities drops below 5%, Merck has agreed to vote its shares in favor of the Company's nominees to the board of directors, increases in the authorized capital stock of the company and amendments to the Company's equity plans approved by the board of directors, in each case as recommended by the

chairman the Company's board of directors. Merck has also agreed, subject to specified exceptions and during the period of the initial five-year research phase, not to sell any of its shares of the Company's capital stock (subject to certain limited exceptions).

The Company identified several significant deliverables under the agreement, including the license and know-how to the GDF15 program, the license to a Small Molecule Program and research and development services to be performed by the Company on behalf of Merck, including research and early development activities up through human proof of concept. The Company concluded that the license to the GDF15 program and the license for the Small Molecule Program do not have stand-alone value to Merck apart from the related research and development services deliverables as there are no other vendors selling similar, competing products on a stand-alone basis and Merck is unable to use the license for its intended purpose without the Company's performance of research and development services. Accordingly, the Company has accounted for the deliverables as one unit of accounting. As such, a total of $94.0 million of revenue is being recognized on a straight-line basis over the period over which the Company expects to fulfill its performance obligations (the performance period), which was determined to be five years. The Company evaluates the performance period at each reporting period.

The Company is also eligible to receive additional payments specific to Merck opting into an Optioned Program. Except for the GDF15 program, each Optioned Program is eligible to receive a one-time payment of $20.0 million upon Merck's exercise of its one-time option to obtain an exclusive, worldwide license for a licensed compound following the completion of a human proof-of-concept study. In addition, if the Company does not opt in to the cost and profit sharing option, then the Company is eligible to receive milestone payments upon the achievement of specific clinical development or regulatory events with respect to the licensed compound indications in the United States, the European Union and Japan of up to an aggregate of $449 million. The Company is also eligible to receive commercial milestone payments of up to $125.0 million payable for each licensed product. In addition, the Company is eligible to receive royalties at ascending low-double digit to mid-teen percentage rates, depending on the level of net sales Merck achieves worldwide for each licensed compound.

The Company has concluded that certain research, clinical development and regulatory milestones that may be received under the Merck Collaboration Agreement, if the Company is involved in future product research, development and commercialization, are substantive. Factors considered in the evaluation of the milestones included the degree of risk associated with performance of the milestone, the level of effort and investment required, whether the milestone consideration was reasonable relative to the deliverables, whether there are substantive uncertainties at the date the arrangement was entered into that the milestone will be achieved, whether the products and services are priced at a significant and incremental discount, whether the consideration relates solely to past performance and whether the milestone was earned at least in part based on the Company's performance. Revenues from substantive milestones, if they are non-refundable, are recognized as revenue upon successful accomplishment of the milestones. Research, clinical and regulatory milestones are deemed non-substantive if they are based solely on the collaborator's performance. Non-substantive milestones will be recognized when achieved to the extent the Company has no remaining performance obligations under the arrangement. Milestone payments earned upon achievement of commercial milestone events will be recognized when earned.

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6. Related Party Transactions

Revenues from related parties refer to the collaboration agreement with Merck. The Company recognized related party collaboration revenue of $81.4 million and $77.1 million for the years ended December 31, 2016 and 2017, respectively. As of December 31, 2016, the Company recorded deferred revenue from related party collaboration agreements of $60.6 million, comprised of $60.3 million of amortized upfront payments and $0.3 million relating to advance payments for research and development activities. As of December 31, 2017, the Company recorded deferred revenue from related party collaboration agreements of $44.1 million, comprised of $41.5 million of amortized upfront payments and $2.6 million relating to advance payments for research and development activities.

7. Commitments and Contingencies

Operating Lease and Lease Guarantee

In September 2009, the Company entered into an operating lease for a corporate office space and laboratory facility at 630 Gateway Blvd, in South San Francisco, California (630 Gateway) for approximately 50,000 square feet, as amended in June 2014 (2014 Lease Amendment), which expires in November 2020. The 2014 Lease Amendment provided for tenant improvement allowances of $0.8 million. The 2014 Lease Amendment contains scheduled rent increases over the lease term and has an option for the Company to extend the lease for an additional three-year term.

In June 2015, the Company entered into an operating lease for additional office space for its corporate office at 600 Gateway Blvd, in South San Francisco, California (600 Gateway) for approximately 7,900 square feet that expired in November 2016.

In December 2015, the Company entered into a new operating lease for its corporate office space and laboratory facility at 333 Oyster Point Blvd, South San Francisco, California (333 Oyster Point) for approximately 122,000 square feet that expires in December 2023. The lease provides a tenant improvement allowance of up to $15.2 million that the Company used in 2016 towards $22.3 million in total leasehold improvements that are amortized over the lease term of seven years.

The lease agreement requires a letter of credit in the amount of $2.3 million as a security deposit to the lease, which the Company has recorded as restricted cash. The Company has the right to reduce the letter of credit amount by $0.4 million on each the 3rd anniversary and 4th anniversary of rent commencement date, respectively.

In July 2016, the Company assigned its operating lease of 630 Gateway to Merck, as part of the Company's relocation to 333 Oyster Point. The Company paid rent on 630 Gateway through October 2016 until it completed the move to its new location. As part of the assignment of the lease, the Company is liable to the lessor if Merck defaults on its lease obligations. Therefore, in substance, the Company has guaranteed the lease payments for 630 Gateway, including lease-related expenses such as utilities, property tax, and common area maintenance without any limitations. The Company assessed the need for a potential guarantee liability on the assigned lease, and concluded that the value of the guarantee was insignificant as of December 31, 2017 because of the short duration of the remaining lease term through November 2020, and Merck's credit rating of AA/A1 and subsequent investment in tenant improvements to the facility. As of December 31, 2016 and 2017, the remaining lease payments due for 630 Gateway were approximately $7.5 million and $5.7 million, respectively.

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The Company recognizes rent expense on a straight-line basis over the lease period with the difference recorded as deferred rent. In addition, tenant improvement allowances recorded are amortized as a reduction to rent expense on a straight-line basis over the lease term. Rent expense under these facility operating leases was approximately $3.7 million and $2.2 million for the years ended December 31, 2016 and 2017, respectively.

Future minimum payments under the unassigned lease obligations described above are as follows as of December 31, 2017 (in thousands):

Year Ended December 31:	
2018	$ 4,123
2019	4,849
2020	4,995
2021	5,141
2022 and thereafter	10,749
Total	$29,857

Indemnification

In the normal course of business, the Company enters into contracts and agreements that contain a variety of representations and warranties and may provide for indemnification of the counterparty. The Company's exposure under these agreements is unknown because it involves claims that may be made against it in the future, but have not yet been made.

In accordance with the Company's amended and restated certificate of incorporation and its amended and restated bylaws, the Company has indemnification obligations to its officers and directors, subject to some limits, with respect to their service in such capacities. The Company has also entered into indemnification agreements with its directors and certain of its officers. To date, the Company has not been subject to any claims, and it maintains director and officer insurance that may enable it to recover a portion of any amounts paid for future potential claims.

The Company's exposure under these agreements is unknown because it involves claims that may be made against it in the future, but have not yet been made. The Company believes that the fair value of these indemnification obligations is minimal and, accordingly, it has not recognized any liabilities relating to these obligations for any period presented.

8. Convertible Preferred Stock

Convertible Preferred Stock

The Company has elected to follow the SEC staff's guidance (included in ASC 480-10-S99, SEC Materials) when evaluating the classification for its shares within the consolidated balance sheets. A liquidation, winding up, change in control, or sale of substantially all assets of the Company could constitute a redemption event. Although the majority of the Company's preferred stock is not mandatorily or currently redeemable, a liquidation or winding up of the Company could constitute an event outside its control. Therefore, all shares of convertible preferred stock have been presented outside the permanent equity for all periods presented due to being contingently redeemable.

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Convertible preferred stock at December 31, 2016 and 2017, consisted of the following (in thousands):

	Shares		Issuance Price per Share	Aggregate Liquidation Value	Aggregate Carrying Value
	Authorized	Outstanding			
Series A	26,589	26,550	$ 1.00	$ 26,550	$ 26,462
Series B	22,156	22,156	2.50	55,389	55,148
Series C	16,656	16,656	3.00	49,970	49,887
Series D	13,200	11,506	5.00	57,530	57,461
Series E	17,667	17,667	6.00	88,335	105,916
	96,268	94,535		$ 277,774	$ 294,874

Amended and Restated Certificate of Incorporation

In March 2015, the Company amended and restated its certificate of incorporation in conjunction with the Series E convertible preferred stock offering. The significant rights and obligations of the Company's convertible preferred stock as of December 31, 2017 are as follows:

Voting Rights: Each holder of convertible preferred stock is entitled to the number of votes equal to the number of shares of common stock into which such shares of convertible preferred stock are convertible. In the event the preferred stockholders control a majority of the Board of Directors through direct representation on the Board of Directors or through other rights, the stockholders can approve redemption of the preferred stock.

Dividends: Each holder of convertible preferred stock is entitled to receive non-cumulative dividends at the rate of 8% per annum for each share of convertible preferred stock outstanding, when, as, and if declared by the Board of Directors. These dividends are payable in preference to common stock dividends. To date, the Company has not declared or paid any dividends.

Liquidation: In the event of any liquidation, dissolution or winding-up of the Company, each holder of convertible preferred stock is entitled to receive payment out of the assets of the Company legally available for distribution for each share of convertible preferred stock held by the holder of an amount per share of preferred stock equal to the original issue price plus all declared and unpaid dividends on the convertible preferred stock, with the exception that the holder of the Series E convertible preferred stock will only be eligible to receive an amount equal to $5.00 per share plus all declared and unpaid dividends on the convertible preferred stock. In the event that the available funds and assets are insufficient for full payment to the holders of convertible preferred stock on a per-share basis as outlined above, the entire assets and funds of the Company legally available for distribution shall be distributed ratably among the holders of convertible preferred stock in proportion to the full amount to which they would otherwise be respectively entitled. Upon completion of the distribution of assets as set forth above, all of the remaining assets, if any, shall be distributed ratably among the holders of common stock.

Conversion: Each share of convertible preferred stock is convertible at the option of the holder into the number of fully paid and non-assessable shares of common stock that result from dividing the original issue price by the conversion price of the convertible preferred stock. The conversion ratio for each series of convertible preferred stock is 1:1.

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Conversion of each series of convertible preferred stock into common stock is automatic upon the earlier of: (a) the closing of an initial public offering of the Company's common stock, registered under the Securities Act of 1933, which results in aggregate proceeds equal to or exceeding $30.0 million to the Company; or (b) at any time upon the affirmative election of the holders.

9. Convertible Preferred Stock Warrant

During 2009, the Company entered into a $1.7 million loan and security agreement with one lender. On June 29, 2010, the Company paid off the loan. In conjunction with the debt facility, the Company issued to the lender a warrant to acquire a total of 39,274 shares of Series A convertible preferred stock exercisable at $1.00 per share and that expires on February 2, 2019. The warrant was valued at approximately $0.72 per share, as calculated using the Black-Scholes option-pricing model using a Series A preferred stock estimated fair value of $1.00 per share, a volatility of 60%, a risk-free interest rate of 3.59%, an expected life of ten years and no dividends. The estimated warrant fair value was initially calculated as approximately $28,000 and was recorded as a discount to the debt. At each subsequent reporting date, the estimated fair value of the warrant is remeasured (Note 3) to adjust the liability for changes in fair value until the earlier of the exercise or expiration of the warrants, or the completion of a deemed liquidation event. At that time, the convertible preferred stock warrant liability will be reclassified to convertible preferred stock or additional paid-in-capital, as applicable.

10. Stockholders' Deficit

Common Stock

As of December 31, 2016 and 2017, the Company had 12,185,937 and 12,437,613 shares of common stock outstanding, respectively, which includes shares subject to repurchase of 582,734 and 227,655, respectively, as a result of early exercise of stock options not yet vested. As of December 31, 2016 and 2017, the Company reserved shares of common stock, on an as-if-converted basis, for issuance as follows:

	December 31,	
	2016	2017
Conversion of convertible preferred stock	94,534,932	94,534,932
Common stock options outstanding	13,746,122	16,709,748
Common stock options available for grant	4,419,190	1,225,208
Warrant to purchase convertible preferred stock	39,274	39,274
401(k) Matching Plan	117,270	95,950
Total	112,856,788	112,605,112

Stock Option Plan

In 2008, the Company adopted the 2008 Equity Incentive Plan (the 2008 Plan) for eligible employees, officers, directors, advisors and consultants, which provides for the grant of incentive and non-statutory stock options, restricted stock awards and stock appreciation rights. The terms of the stock option agreements, including vesting requirements, are determined by the Board of Directors, subject to the provisions of the 2008 Plan. Options granted by the Company generally vest within four years and are exercisable from the grant date until ten years after the date of grant. Vesting of certain employee options may be accelerated in the event of a change in control of the Company. As of December 31, 2017, 27,000,000 shares of common stock have been authorized for issuance under the 2008 Plan.

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Stock options are governed by stock option agreements between the Company and recipients of stock options. The Board of Directors determined the fair value of common stock using valuations prepared by an unrelated third-party valuation firm. The exercise price of each option shall not be less than 100% of the fair market value of the common stock subject to the option on the date the option is granted. A 10% or greater stockholder shall not be granted an incentive stock option unless the exercise price of such option is at least 110% of the fair value of the common stock on the date of grant and the option is not exercisable after the expiration of five years from the grant date. Options become exercisable and expire as determined by the Compensation Committee, provided that the term of incentive stock options may not exceed ten years from the date of grant for options granted to those other than 10% stockholders.

Stock Option Activity

A summary of the outstanding stock options is as follows:

		Outstanding Options			
	Options Available for Grant	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in Years)	Aggregate Intrinsic Value (in thousands)
Balances at December 31, 2015	4,356,090	11,216,673	$ 1.52	7.38	$ 26,387
Additional shares reserved	3,000,000	—			
Options granted	(3,504,500)	3,504,500	3.82		
Options exercised	—	(407,451)	0.56		
Options cancelled	567,600	(567,600)	2.85		
Balances at December 31, 2016	4,419,190	13,746,122	$ 2.04	7.16	$ 24,918
Options granted	(3,777,250)	3,777,250	3.85		
Options exercised	—	(234,796)	1.81		
Options cancelled	578,828	(578,828)	3.42		
Options repurchased	4,440	—	1.86		
Balances at December 31, 2017	1,225,208	16,709,748	$ 2.41	6.79	$ 27,814
Vested and expected to vest at December 31, 2017		16,062,280	$ 2.36	6.73	$ 27,537
Outstanding and exercisable as of December 31, 2017		16,709,748	$ 2.41	6.79	$ 27,814

The aggregate intrinsic values of options outstanding, exercisable, vested and expected to vest were calculated as the difference between the exercise price of the options and the estimated fair value of the Company's common stock, as determined by the Board of Directors.

The weighted-average grant date fair value of stock options granted during the years ended December 31, 2016 and 2017 was $3.82 and $3.85 per share, respectively. The intrinsic value of stock options exercised was $1.3 million and $0.5 million for the years ended December 31, 2016 and 2017, respectively. Because of the Company's net operating losses, the Company did not realize any tax benefits from stock-based payment arrangements for the years ended December 31, 2016 and 2017.

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Early Exercise of Stock Options

The 2008 Plan allows for the granting of options that may be exercised before the options have vested. Shares issued as a result of early exercise that have not vested are subject to repurchase by the Company upon termination of the purchaser's employment or services, at the price paid by the purchaser, and are not deemed to be issued for accounting purposes until those related shares vest. The amounts received in exchange for these shares have been recorded as a liability on the consolidated balance sheets and will be reclassified into common stock and additional paid-in-capital as the shares vest. The Company's right to repurchase these shares generally lapses in equal installments over four years beginning from the original vesting commencement date.

At December 31, 2016 and 2017, there were 582,734 and 227,655 shares of common stock outstanding, respectively, subject to the Company's right of repurchase at prices ranging from $1.08 to $3.82 per share. At December 31, 2016 and 2017, the Company recorded $0.9 million and $0.4 million, respectively, as early exercise stock option liabilities associated with shares issued with repurchase rights.

Employee Stock-Based Compensation Expense

Employee and director stock-based compensation expense for the years ended December 31, 2016 and 2017, was calculated based on awards ultimately expected to vest and has been reduced for estimated forfeitures. The following table summarizes stock-based compensation expense related to stock-based payment awards to employees and directors for the years ended December 31, 2016 and 2017, which was allocated as follows (in thousands):

	Year Ended December 31,	
	2016	2017
Research and development	$3,610	$4,473
General and administrative	2,267	2,994
	$5,877	$7,467

Valuation Assumptions

The Company uses the Black-Scholes option-pricing model to estimate the fair value of stock options at the grant date. The Black-Scholes option-pricing model requires the Company to make certain estimates and assumptions, including assumptions related to the expected price volatility of the Company's stock, the period during which the options will be outstanding, the rate of return on risk-free investments and the expected dividend yield for the Company's stock.

The fair value of stock option awards granted to employees was estimated at the date of grant using a Black-Scholes option-pricing model with the following weighted-average valuation assumptions:

	Year Ended December 31,	
	2016	2017
Risk-free interest rate	1.59%	1.73%
Expected term of options (in years)	6.25	6.25
Expected stock price volatility	76.18%	75.48%
Expected Dividends	—	—

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The weighted-average valuation assumptions were determined as follows:

Expected Stock Price Volatility: The expected volatility is based on the historical volatility of the stock of similar entities within the Company's industry over periods commensurate with the Company's expected term assumption.

Expected Term of Options: The expected term of options represents the period of time options are expected to be outstanding. The expected term of the options granted is derived using the "simplified" method (that is, estimating the expected term as the midpoint between the vesting date and the end of the contractual term for each option).

Risk-Free Interest Rate: The Company bases the risk-free interest rate on the interest rate payable on U.S. Treasury securities in effect at the time of grant for a period that is commensurate with the assumed expected option term.

Expected Annual Dividends: The estimate for annual dividends is $0 because the Company has not historically paid, and does not expect for the foreseeable future to pay, a dividend.

As of December 31, 2017, there was approximately $12.5 million in total unrecognized compensation expense, net of estimated forfeitures, related to unvested options granted to employees and directors under the 2008 Plan. The expense is expected to be recognized over a weighted-average period of 2.4 years.

Stock Options Granted to Non-employees

The Company grants stock options to non-employees in exchange for services performed for the Company. During the years ended December 31, 2016, the Company granted options to purchase 95,000 shares of common stock to non-employees. During the year ended December 31, 2017, the Company did not grant any options to purchase shares of common stock to non-employees. The weighted-average exercise price of the options granted to these consultants in 2016 was $3.82 per share. The following table summarizes stock-based compensation expense related to stock-based payment awards to non-employees for the years ended December 31, 2016 and 2017, which was allocated as follows (in thousands):

	Year Ended December 31,	
	2016	2017
Research and development	$141	$250
General and administrative	—	—
	$141	$250

The fair value of stock option awards granted to non-employees was estimated at the date of grant using the Black-Scholes option-pricing model with the following weighted-average valuation assumptions:

	Year Ended December 31,	
	2016	2017
Risk-free interest rate	1.78%	2.48%
Term of options (in years)	7.25	6.95
Expected stock price volatility	75.44%	64.93%
Expected Dividends	—	—

In general, the options vest over the contractual periods of the respective non-employee arrangement. The Company revalues the options each reporting period and, accordingly, adjusts the compensation expense related to these options over the remaining vesting periods. As of December 31, 2016 and 2017, non-employee stock options to purchase 100,419 and 63,752 shares, respectively, remain unvested.

11. Income Taxes

Tax Cuts and Jobs Act of 2017

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the “Act”) was signed into law making significant changes to the Internal Revenue Code. Changes include, but are not limited to, a corporate tax rate decrease from 35% to 21% effective for tax years beginning after December 31, 2017, eliminating the corporate alternative minimum tax (AMT) and changing how existing AMT credits can be realized, the transition of U.S. international taxation from a worldwide tax system to a territorial system, and a one-time transition tax on the mandatory deemed repatriation of cumulative foreign earnings as of December 31, 2017.

The Act reduces the corporate tax rate to 21 percent, effective January 1, 2018. Consequently, the Company has recorded a decrease in net deferred tax assets of $13.0 million, with a corresponding adjustment to valuation allowance of $13.0 million for the year ended December 31, 2017. The state deferred tax effect on federal deferred tax assets has been calculated using 79% rather than the previous 66% federal benefit. The increase in deferred tax assets has been offset against an increase to the valuation allowance.

The Act also repealed the corporate AMT for tax years beginning January 1, 2018, and provides that existing AMT credit carryovers are refundable beginning in 2018. The Company expects to realize a refund of $1.0 million related to its current AMT credit carryovers. The Company believes it is appropriate to classify the AMT credits that are expected to be refundable in future periods as an income tax receivable, and has included this receivable with other non-current assets on the balance sheet.

The Act provides that the 50% bonus depreciation amount provided by Internal Revenue Code Section 168(k)(1)(A) increases to 100% for qualified property placed into service after September 27, 2017 and before January 1, 2023. The current tax provision calculation reflects the applicable bonus depreciation taken on qualified property placed into service in 2017.

The Deemed Repatriation Transition Tax (Transition Tax) is a tax on previously untaxed accumulated and current earnings and profits (E&P) of certain foreign subsidiaries. To determine the amount of the Transition Tax, the Company must determine, in addition to other factors, the amount of post-1986 E&P of the relevant subsidiaries, as well as the amount of non-U.S. income taxes paid on such earnings. Since NGM Biopharmaceuticals Australia Pty Ltd, the Company’s only subsidiary, has a cumulative deficit in E&P, there is no Transition Tax to be included in the December 31, 2017 tax provision.

On December 22, 2017 the Securities and Exchange Commission (SEC) staff issued Staff Accounting Bulletin No. 118 (“SAB 118”), which provides guidance for the tax effect of the Act. SAB 118 provides a measurement period that should not extend beyond one year from the Act’s enactment date for companies to complete the accounting under ASC Topic 740, *Income Taxes*

("ASC 740"). In accordance with SAB 118, the Company must reflect the income tax effects of those aspects of the Act for which the accounting under ASC 740 is complete. To the extent the Company's accounting for certain income tax effects of the Act is incomplete, but it is able to determine a reasonable estimate, the Company must record a provisional estimate to be included in its consolidated financial statements. If the Company cannot determine a provisional estimate to be included in its consolidated financial statements, it should continue to apply ASC 740 on the basis of the provisions of the tax laws that were in effective immediately before the enactment of the Act. The amounts of the tax effects related to the Act described in the paragraphs above represent the Company's reasonable estimates and are provisional amounts within the meaning of SAB 118. Also, it is expected the U.S. Treasury will issue regulations and other guidance on the application of certain provisions of the Act. In subsequent periods, but within the measurement period, the Company will analyze that guidance and other necessary information to refine its estimates and complete its accounting for the tax effects of the Act as necessary.

Income Taxes

The benefit from income taxes was $1.0 million for the year ended December 31, 2017, related to the receivable for refund of Company's AMT carryovers. The provision for income taxes was $0.5 million for the year ended December 31, 2016, although the Company incurred operating losses on a consolidated basis. The provision for 2016 was comprised primarily of federal alternative minimum tax.

The components of the Company's losses before income taxes were as follows (in thousands):

	Year Ended December 31,	
	2016	2017
Foreign	$(2,600)	$ (8,974)
Domestic	(3,822)	(6,245)
Total	$(6,422)	$(15,219)

A reconciliation of the statutory U.S. federal rate to the Company's effective tax rate is as follows:

	Year Ended December 31,	
	2016	2017
U.S. federal tax at statutory rate	34.0%	34.0%
Foreign rate differential	(2.3)	(1.6)
State tax, net of federal benefit	0.9	1.3
Stock-based compensation	(24.3)	(14.5)
Change in Valuation Allowance	(11.7)	68.7
Remeasurement of deferred taxes	—	(85.0)
Other	(4.4)	4.0
Total	(7.8)%	6.9%

NGM BIOPHARMACEUTICALS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The components of the net deferred tax assets are as follows (in thousands):

	December 31,	
	2016	2017
Deferred tax assets:		
Net operating loss carryforwards	$ 21,493	$ 22,964
Research and development credit	5,118	4,957
Deferred revenue	20,557	8,819
Other temporary differences	3,445	3,234
Total gross deferred tax assets	50,613	39,974
Deferred tax liabilities:		
Depreciation and amortization	(1,818)	(1,218)
Non-qualified stock options with 83(b) election	—	(345)
Total gross deferred tax liabilities	(1,818)	(1,563)
Net deferred tax assets before valuation allowance	48,795	38,411
Deferred tax asset valuation allowance	(48,795)	(38,411)
Net deferred tax assets	$ —	$ —

ASC 740 requires that the tax benefit of net operating losses, temporary differences and credit carryforwards be recorded as an asset to the extent that management assesses that realization is “more likely than not.” Realization of the future tax benefits is dependent on the Company’s ability to generate sufficient taxable income within the carryforward period. Because of the Company’s recent history of operating losses, management believes that recognition of the deferred tax assets arising from the above-mentioned future tax benefits is currently not likely to be realized and, accordingly, has provided a valuation allowance.

Realization of deferred tax assets is dependent upon future earnings, if any, the timing and amount of which are uncertain. Accordingly, the net deferred tax assets have been fully offset by a valuation allowance. The valuation allowance increased by approximately $0.6 million and decreased by approximately $10.4 million during the years ended December 31, 2016 and 2017, respectively.

As of December 31, 2016 and 2017, the Company had approximately $42.3 million and $60.2 million, respectively, in federal net operating loss carryforwards and had approximately $69.0 million and $71.8 million, respectively, in state net operating loss carryforwards to reduce future taxable income. The federal and state net operating loss carryforwards will begin to expire in the years 2028 through 2037, if not utilized.

As of December 31, 2016 and 2017, the Company had approximately $3.2 million and $3.1 million, respectively, in federal, and $4.0 million and $4.0 million, respectively, in state research and development tax credits. The federal research credits will begin to expire in the years 2028 through 2037, if not utilized, and the state research and development credits have no expiration date.

As of December 31, 2016 and 2017, the Company had foreign net operating loss carryforwards of approximately $10.3 million and $17.3 million, which have no expiration date.

Utilization of the Company’s net operating losses and credits may be subject to a substantial annual limitation due to the “change in ownership” provisions of the Internal Revenue Code of 1986, as amended, and similar state provisions. The annual limitation may result in the expiration of net operating losses and credits before utilization.

NGM BIOPHARMACEUTICALS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

A reconciliation of the Company's unrecognized tax benefits for the years ended December 31, 2016 and 2017 is as follows (in thousands):

	December 31,	
	2016	2017
Balance at beginning of year	$ 4,090	$1,528
Additions (deletions) based on tax positions related to prior year	(2,562)	—
Balance at end of year	$ 1,528	$1,528

There is approximately $1.5 million of unrecognized tax benefits included in the balance sheet that would, if recognized, affect the effective tax rate before consideration of valuation allowance. The Company does not believe that its unrecognized tax benefits will significantly change within the next 12 months.

It is the Company's practice to recognize interest and penalties related to income tax matters in income tax expense. As of December 31, 2016 and 2017, the Company had no accrued interest and penalties related to uncertain tax positions.

The Company files federal, state, and foreign income tax returns with varying statutes of limitations. The tax years from inception in 2008 forward remain open to examination due to the carryover of unused net operating losses and tax credits.

12. Employee Benefit Plan

The Company sponsors a 401(k) defined contribution plan for its employees. Employee contributions are voluntary. In December 2011, the Company adopted the 401(k) Matching Plan, whereby the Company will make matching contributions in the form of common stock at a rate of $0.50 for each $1.00 of employee contributions up to a maximum $750 of common stock per year. As of December 31, 2016 and 2017, the Company had reserved 117,270 and 95,950 shares of common stock for issuance pursuant to the 401(k) Matching Plan, respectively. Matching contributions of 17,141 and 21,320 shares, or $82,000 and $93,000 were issued for the years ended December 31, 2016 and 2017, respectively.

13. Subsequent Events

For the consolidated financial statements as of the years ended December 31, 2016 and 2017, the Company has reviewed and evaluated material subsequent events through the consolidated financial statements' issuance date of August 10, 2018. No subsequent events have been identified for disclosure.

NGM BIOPHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)
(In Thousands, Except Share and Per Share Amounts)

	December 31, 2017 (Note 1)	June 30, 2018	Pro Forma Stockholders' Equity as of June 30, 2018
Assets			
Current assets:			
Cash and cash equivalents	$ 25,593	$ 38,912	
Short-term marketable securities	148,092	150,315	
Prepaid expenses and other current assets	1,848	2,249	
Total current assets	175,533	191,476	
Long-term marketable securities	45,150	15,944	
Property and equipment, net	24,873	26,731	
Restricted cash	2,249	2,249	
Other non-current assets	1,136	1,163	
Total assets	$ 248,941	$ 237,563	
Liabilities, convertible preferred stock and stockholders' deficit			
Current liabilities:			
Accounts payable	$ 1,892	$ 4,196	
Accrued liabilities	11,686	11,275	
Deferred rent, current	1,957	2,610	
Deferred revenue, current	21,358	20,819	
Total current liabilities	36,893	38,900	
Deferred rent, non-current	14,904	13,599	
Deferred revenue, non-current	22,742	13,342	
Early exercise stock option liability	385	176	
Convertible preferred stock warrant liability	121	121	$ —
Total liabilities	75,045	66,138	
Commitments and Contingencies (Note 6)			
Convertible preferred stock, $0.001 par value; 96,268,206 shares authorized at December 31, 2017 and June 30, 2018; 94,534,932 shares issued and outstanding at December 31, 2017 and June 30, 2018; aggregate liquidation preference of $277,774 at December 31, 2017 and June 30, 2018; no shares issued and outstanding at June 30, 2018, pro forma	294,874	294,874	—
Stockholders' equity (deficit):			
Common stock, $0.001 par value; 129,000,000 shares authorized at December 31, 2017 and June 30, 2018; 12,437,613 and 12,649,712 shares issued and outstanding at December 31, 2017 and June 30, 2018, respectively; 107,184,644 shares issued and outstanding at June 30, 2018, pro forma	12	13	107
Additional paid-in capital	26,141	30,877	325,778
Accumulated other comprehensive loss	(431)	(498)	(498)
Accumulated deficit	(146,700)	(153,841)	(153,841)
Total stockholders' equity (deficit)	(120,978)	(123,449)	171,546
Total liabilities, convertible preferred stock and stockholders' equity (deficit)	$ 248,941	$ 237,563	$ 171,546

See accompanying notes to the condensed consolidated financial statements.

NGM BIOPHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited)
(In Thousands, Except Per Share Amounts)

	Six Months Ended June 30,	
	2017	2018
Related party collaboration revenue	$ 37,918	$ 40,731
Total related party collaboration revenue	37,918	40,731
Operating expenses:		
Research and development	40,645	42,300
General and administrative	7,643	7,332
Total operating expenses	48,288	49,632
Loss from operations	(10,370)	(8,901)
Interest income	1,048	1,643
Other income (expense), net	(154)	117
Net loss	$ (9,476)	$ (7,141)
Net loss per common share, basic and diluted	$ (0.80)	$ (0.58)
Weighted average shares used to compute net loss per common share, basic and diluted	11,774,231	12,326,850
Pro forma net loss per common share, basic and diluted (unaudited)		$ (0.07)
Weighted average shares used to compute pro forma net loss per common share, basic and diluted (unaudited)		106,861,782

See accompanying notes to the condensed consolidated financial statements.

NGM BIOPHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(Unaudited)
(In Thousands)

	Six Months Ended June 30,	
	2017	2018
Net loss	$(9,476)	$(7,141)
Other comprehensive loss, net of tax:		
Net unrealized loss on available-for-sale marketable securities	(29)	(67)
Total comprehensive loss	$(9,505)	$(7,208)

See accompanying notes to the condensed consolidated financial statements.

NGM BIOPHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)
(In Thousands)

	Six Months Ended June 30,	
	2017	2018
Cash flows from operating activities		
Net loss	$ (9,476)	$ (7,141)
Adjustments to reconcile net loss to net cash used in operating activities		
Depreciation	3,047	3,453
Amortization (accretion) of premium on marketable securities	332	(171)
Stock-based compensation expenses	3,833	4,476
Early exercised stock options	—	7
Change in fair value of convertible preferred stock warrant liability	(1)	—
Other non-cash expenses	40	—
Changes in operating assets and liabilities		
Receivable from related party collaboration	2,769	—
Prepaid expenses and other assets	(1,265)	(428)
Accounts payable	(2,836)	2,056
Accrued expenses and other liabilities	208	(415)
Deferred rent	(603)	(652)
Deferred revenue	(7,382)	(9,939)
Net cash used in operating activities	(11,334)	(8,754)
Cash flows from investing activities		
Purchase of marketable securities	(94,801)	(70,245)
Proceeds from sales and maturities of marketable securities	123,703	97,332
Purchase of property and equipment	(4,463)	(5,063)
Net cash provided by investing activities	24,439	22,024
Cash flows from financing activities		
Proceeds from issuance of common stock upon exercise of stock options	257	234
Repurchase of common stock	—	(185)
Net cash provided by financing activities	257	49
Net increase in cash and cash equivalents	13,362	13,319
Cash and cash equivalents at beginning of period	45,463	25,593
Cash and cash equivalents at end of period	$ 58,825	$ 38,912
Non-cash investing and financing activities:		
Vesting of common stock from early exercises	256	216
Cost of property and equipment in accounts payable and accrued liabilities	$ 158	$ 456

See accompanying notes to the condensed consolidated financial statements.

NGM BIOPHARMACEUTICALS, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

1. Organization and Description of Business

NGM Biopharmaceuticals, Inc. and its wholly owned subsidiary (collectively referred to as the "Company") is a research-driven, clinical-stage biopharmaceutical company committed to discovering and developing first-in-class therapeutics for major diseases with an initial focus on cardio-metabolic and liver diseases. The Company's current portfolio is composed of seven product candidates (NGM282, NGM313, NGM386, NGM395, NGM217, NGM120 and NGM621) focused on non-alcoholic steatohepatitis, or NASH, type 2 diabetes, obesity, oncology and age-related macular degeneration, or AMD.

The Company was incorporated in Delaware on December 20, 2007 and its headquarters are located at 333 Oyster Point Blvd. South San Francisco, California 94080. The Company operates in one business segment.

2. Summary of Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

The accompanying consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles (U.S. GAAP) and include the consolidated accounts of the Company and its subsidiary. During 2012, the Company established a wholly owned foreign subsidiary in Australia. All intercompany balances and transactions have been eliminated in consolidation.

Unaudited Interim Financial Information

The accompanying condensed consolidated balance sheet as of June 30, 2018, the statements of operations and comprehensive loss and cash flows for the six months ended June 30, 2017 and 2018, and the related interim information contained within the notes to the consolidated financial statements are unaudited. The unaudited interim consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements and, in the opinion of management, reflect all normal recurring adjustments necessary for a fair statement of the Company's financial position as of June 30, 2018 and the consolidated results of the Company's operations and cash flows for the six months ended June 30, 2017 and 2018. The results of the Company's consolidated operations for the six months ended June 30, 2018 are not necessarily indicative of the results to be expected for the year ended December 31, 2018 or for other future interim periods or years. The condensed consolidated balance sheet as of December 31, 2017 included herein was derived from the audited consolidated financial statements as of that date. These condensed consolidated financial statements should be read in conjunction with the Company's audited consolidated financial statements included elsewhere in this prospectus.

Unaudited Pro Forma Stockholders' Equity and Net Loss per Common Share

The June 30, 2018 unaudited pro forma stockholders' equity has been prepared assuming upon the closing of the Company's initial public offering (IPO): (1) the automatic conversion of all outstanding shares of convertible preferred stock into shares of common stock and (2) the conversion of the warrant exercisable for convertible preferred stock outstanding as of June 30, 2018 into a warrant exercisable for shares of common stock, resulting in the reclassification of the related convertible preferred stock warrant liability to additional paid-in capital. The unaudited pro forma stockholders' equity does not include the shares expected to be sold and related proceeds to be received from the

NGM BIOPHARMACEUTICALS, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

IPO or from the concurrent private placement of shares to Merck Sharp & Dohme Corp., (Merck). For purposes of the pro forma basic and diluted net loss per common share, all shares of convertible preferred stock have been treated as though they had been converted to common stock in all periods in which such shares were outstanding.

	Six months ended June 30, 2018
Net loss	$ (7,141)
Shares used in computing net loss per share—basic and diluted	12,326,850
Pro forma adjustment to reflect assumed conversion of non-redeemable convertible preferred stock	94,534,932
Shares used to compute pro forma net loss per share—basic and diluted	106,861,782
Pro forma net loss per share—basic and diluted	$ (0.07)

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make judgments, assumptions and estimates that affect the reported amounts of assets, liabilities, revenues and expenses. Specific accounts that require management estimates include, but are not limited to, stock-based compensation, research and development periods under multiple element agreements, the valuation of convertible preferred stock warrants, the fair value of convertible preferred and common stock, contract manufacturing accruals and clinical trial accruals. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results could differ materially from those estimates.

Need for Additional Capital

Since inception, the Company has incurred net losses and negative cash flow from operations. During the six months ended June 30, 2017 and 2018 the Company incurred a net loss of $9.5 million and $7.1 million, respectively. At June 30, 2018 the Company had an accumulated deficit of $153.8 million and does not expect to experience positive cash flows from operations in the near future. The Company had $205.2 million of cash, cash equivalents and marketable securities at June 30, 2018. Based on the Company's business plan, management believes this is sufficient to meet its obligations for at least the next twelve months from the issuance date of these consolidated financial statements.

Fair Value of Financial Instruments

The carrying amounts of cash and cash equivalents and other current assets and liabilities approximate their respective fair values because of the short-term nature of those instruments. Fair value accounting is applied to the convertible preferred stock warrant liabilities that are recorded at their estimated fair value in the consolidated financial statements.

Deferred IPO Costs

Deferred IPO costs will be capitalized and included with other non-current assets on the condensed consolidated balance sheet, and offset against proceeds from the IPO upon the

consummation of the IPO. In the event the IPO is terminated, all capitalized costs will be expensed. There were no deferred IPO costs as of June 30, 2018.

Cash and Cash Equivalents

Cash and cash equivalents are stated at fair value. Cash equivalents relate to securities having an original maturity of three months or less at the time of purchase. The Company limits its credit risk associated with cash and cash equivalents by placing its investments with a bank it believes is highly creditworthy and with highly rated money market funds. As of December 31, 2017 and June 30, 2018, cash and cash equivalents consisted of bank deposits and investments in money market funds.

Marketable Securities

The Company determines the appropriate classification of its marketable securities at the time of purchase and re-evaluates such designation at each balance sheet date. All of the Company's securities are considered as available-for-sale and carried at estimated fair values and reported in cash equivalents, short-term marketable securities or long-term marketable securities. Unrealized gains and losses on available-for-sale securities are excluded from net income and reported in accumulated other comprehensive income (loss) as a separate component of stockholders' equity. Other income (expense), net, includes interest, amortization of purchase premiums and accretion of purchase discounts, realized gains and losses on sales of securities and other-than-temporary declines in the fair value of securities, if any. The cost of securities sold is based on the specific identification method.

The Company regularly reviews all of its investments for other-than-temporary declines in fair value. This review includes the consideration of the cause of the impairment, including the creditworthiness of the security issuers, the number of securities in an unrealized loss position, the severity and duration of the unrealized losses, whether the Company has the intent to sell the securities and whether it is more likely than not that the Company will be required to sell the securities before the recovery of their amortized cost basis. When the Company determines that the decline in fair value of an investment is below its carrying value and this decline is other-than-temporary, the Company reduces the carrying value of the security it holds and records a loss for the amount of such decline.

Revenue Recognition

All of the Company's revenue to date has been generated from its collaboration agreements. Revenue from collaboration agreements may include non-refundable upfront license fees, partial or complete reimbursement of research and development costs, contingent consideration payments based on the achievement of defined collaboration objectives and royalties on sales of commercialized products. Revenue from research activities earned under collaboration arrangements are recognized when there is persuasive evidence that an arrangement exists, services have been rendered, the price is fixed or determinable and collectability is reasonably assured. Revenue generated from the Company's collaboration arrangements is not subject to repayment. The Company's obligations under collaboration agreements may include the transfer of intellectual property rights in the form of licenses, obligations to provide research and development services and obligations to participate on certain development committees with the collaboration party. The Company makes judgments that affect the period over which the Company recognizes revenue. At each reporting period, the Company reviews its estimated period of performance for its collaboration and license revenue based on the progress under the arrangement and accounts for the impact of any changes in estimated periods of

performance on a prospective basis. The Company records amounts received prior to satisfying the above revenue recognition criteria as deferred revenue until all applicable revenue recognition criteria are met. Deferred revenue represents the portion of research or license payments received that have not been earned.

For revenue agreements with multiple-element arrangements, such as license and development agreements, the Company allocates revenue to each non-contingent element based on the relative selling price of each element. When applying the relative selling price method, the Company determines the selling price for each deliverable using vendor-specific objective evidence or third-party evidence. If neither exists, the Company uses the best estimate of selling price for that deliverable. Revenue allocated is then recognized when all of the following criteria are met: persuasive evidence of an arrangement exists; transfer of technology has been completed or services have been rendered; the price to the customer is fixed or determinable and collectability is reasonably assured.

Payments that are contingent upon the achievement of a substantive milestone are recognized entirely as revenue in the period in which the milestone is achieved. A milestone is defined as an event: (a) that can only be achieved based in whole or in part on either (1) the Company's performance or (2) on the occurrence of a specific outcome resulting from the Company's performance; (b) for which there is substantive uncertainty at the date the arrangement is entered into that the event will be achieved; and (c) that would result in additional payments being due to the entity. A milestone is considered substantive if the consideration earned from the achievement of the milestone meets all of the following criteria: (a) the consideration is commensurate with either (1) the Company's performance to achieve the milestone, or (2) the enhancement of the value of the delivered item(s) as a result of a specific outcome resulting from the Company's performance to achieve the milestone; (b) the consideration relates solely to past performance; and (c) the consideration is reasonable relative to all of the deliverables and payment terms (including other potential milestone consideration) within the arrangement. To the extent that non-substantive milestones are achieved and the Company has remaining performance obligations, payments in respect of such milestones are deferred and recognized as revenue over the estimated remaining period of performance. If there were no remaining performance obligations, the Company would recognize the revenue in the period it is earned.

Payments related to options to license the Company's program candidates are considered substantive if, at the inception of the arrangement, the Company is at risk as to whether the collaboration partner will choose to exercise the option. Factors that the Company considers in evaluating whether an option is substantive include the overall objective of the arrangement, the benefit the collaborator might obtain from the arrangement without exercising the option, the cost to exercise the option and the likelihood that the option will be exercised. For arrangements under which an option is considered substantive, the Company does not consider the item underlying the option to be a deliverable at the inception of the arrangement and the associated option fees are not included in allocable arrangement consideration, assuming the option is not priced at a significant and incremental discount. Conversely, for arrangements under which an option is not considered substantive or if an option is priced at a significant and incremental discount, the Company would consider the item underlying the option to be a deliverable at the inception of the arrangement and a corresponding amount would be included in allocable arrangement consideration.

Revenue related to research collaboration services and grants are recognized as research costs are incurred and/or the underlying services are performed over the term as specified in the related agreements.

NGM BIOPHARMACEUTICALS, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

Research and Development

Research and development costs are expensed as incurred. Research and development expenses primarily include salaries and benefits for medical, clinical, quality, preclinical, manufacturing, and research personnel, costs related to research activities, preclinical and preclinical studies, clinical trials, drug manufacturing expenses, and allocated overhead and facility occupancy costs. The Company accounts for non-refundable advance payments for goods or services that will be used in future research and development activities as expenses when the goods have been received or when the service has been performed rather than when the payment is made.

Stock-Based Compensation

The Company values stock-based payments to employees on the grant date of each award and recognizes the estimated fair value of such awards over the period during which the employee is required to provide service in exchange for the award, which is generally the vesting period of each award. Stock-based payments to consultants are subject to periodic remeasurement over their vesting terms. Stock-based payments are valued using the Black-Scholes option-pricing model. Because non-cash stock-based compensation expense is based on awards ultimately expected to vest, it is reduced by an estimate for future forfeitures. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from estimates.

Net Loss per Common Share

Basic net loss per common share is calculated by dividing net loss by the weighted-average number of common shares outstanding during the period, less shares subject to repurchase, and excludes any dilutive effects of stock-based awards and warrants. Diluted net loss per common share is computed giving effect to all potentially dilutive common shares, including common stock issuable upon exercise of stock options, and unvested restricted common stock and stock units. As the Company had net losses for the six months ended June 30, 2017 and 2018, all potential common shares were determined to be anti-dilutive.

The following table sets forth the computation of net loss per common share (in thousands, except per share):

	Six Months Ended June 30,	
	2017	2018
Numerator:		
Net loss	$ (9,476)	$ (7,141)
Denominator:		
Weighted-average number of common shares used in calculating net income per share—basic and diluted	11,774,231	12,326,850
Net loss per share—basic and diluted	$ (0.80)	$ (0.58)

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Potentially dilutive securities that were not included in the diluted per share calculations because they would be anti-dilutive were as follows:

	Six Months Ended June 30,	
	2017	2018
	(unaudited)	
Convertible preferred stock	94,534,932	94,534,932
Options to purchase common stock	17,351,025	19,498,137
Warrants to purchase convertible preferred stock	39,274	39,274
Total	111,925,231	114,072,343

Segment and Geographical Information

The Company operates in one segment. Substantially all of the Company's long-lived assets are based in the United States. Long-lived assets are primarily comprised of property and equipment. For the six months ended June 30, 2017 and 2018, the Company's revenues were in the United States based upon the location of the customer.

Adopted Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the FASB, or other standard setting bodies and adopted by us as of the specified effective date. Unless otherwise discussed, the impact of recently issued standards that are not yet effective will not have a material impact on our consolidated financial statements upon adoption. Under the Jumpstart Our Business Startups Act of 2012, as amended (the JOBS Act), we meet the definition of an emerging growth company, and have elected the extended transition period for complying with new or revised accounting standards pursuant to Section 107(b) of the JOBS Act.

In March 2016, the FASB issued ASU No. 2016-09, *Compensation—Stock Compensation (Topic 718)—Improvements to Employee Share Based Payment Accounting* as part of the FASB simplification initiative. The new standard provides for changes to accounting for stock compensation including 1) excess tax benefits and tax deficiencies related to share based payment awards will be recognized as income tax expense in the reporting period in which they occur; 2) excess tax benefits will be classified as an operating activity in the statement of cash flows; 3) the option to elect to estimate forfeitures or account for them when they occur; and 4) increase tax withholding requirements threshold to qualify for equity classification. The Company adopted ASU 2016-09 as of January 1, 2018; however, there was no impact on the Company's consolidated financial statements as a result of adopting ASU 2016-09.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation—Stock Compensation (Topic 718): Scope Modification Accounting*. ASU 2017-09 defines which changes to the terms or conditions of a share-based payment award require the Company to apply modification accounting. The Company adopted ASU 2017-09 in 2018. However, during the six months ended June 30, 2018 there have been no changes to terms or conditions of share-based payment awards that require modification accounting.

Recent Accounting Pronouncements

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers*, which supersedes the revenue recognition requirements in Accounting Standards Codification

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(ASC) 605, Revenue Recognition. This ASU is based on the principle that revenue is recognized to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The ASU also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to obtain or fulfill a contract. The ASU's effective date will be for the fiscal year beginning January 1, 2019 using one of two retrospective application methods. The Company is currently assessing the impact of adoption on its consolidated financial statements and developing a plan for transition to the new guidance. The Company is currently at the early stages of analyzing its research collaboration, product development and license agreement with Merck to determine the differences in the accounting treatment under ASU 2014-09 compared to the current accounting treatment. The consideration the Company is eligible to receive under this agreement includes upfront payments, research and development funding, option payments, milestone payments, and royalties. The new revenue recognition standard differs from the current accounting standard in many respects, such as in the accounting for variable consideration and the measurement of progress toward completion of performance obligations. While the Company has not completed an assessment of the impact of adoption, the adoption of ASU 2014-09 may have a material effect on its consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases* (ASU 2016-02). ASU 2016-02 is aimed at making leasing activities more transparent and comparable, and requires substantially all leases be recognized by lessees on their balance sheet as a right-of-use asset and corresponding lease liability, including leases currently accounted for as operating leases. ASU 2016-02 is effective for all annual reporting periods beginning after December 15, 2019. Early adoption is permitted. The Company is currently evaluating the impact that the adoption of ASU 2016-02 will have on its financial statements and related disclosures.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows (Topic 230)—Restricted Cash*, to clarify the presentation of the change in restricted cash on the statement of cash flows. The new standard clarifies the FASB's position that changes to restricted cash are not reflective of an entity's operating, investing or financing activities, and therefore should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The ASU is effective for fiscal years beginning after December 15, 2018. The Company is currently assessing the impact of this ASU on the presentation of its consolidated statement of cash flows.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation—Stock Compensation (Topic 718): Improvements to Non-Employee Share-Based Payment Accounting* as part of the FASB simplification initiative. The new standard expands the scope of Topic 718, allowing the Company to apply the requirements of Topic 718 to certain non-employee awards to acquire goods and services from non-employees. This ASU will be effective for the Company for fiscal years beginning after December 15, 2019, and interim periods within fiscal years beginning after December 15, 2020, with early adoption permitted. The Company is currently assessing the impact of this ASU on its consolidated financial statements.

3. Fair Value Measurements

Financial assets and liabilities are recorded at fair value. The carrying amount of certain financial instruments, including cash and cash equivalents, receivable from collaboration, related party

receivable from collaboration and other current assets and liabilities approximate fair value due to their relatively short maturities. Assets and liabilities recorded at fair value on a recurring basis in the balance sheets are categorized based upon the level of judgment associated with the inputs used to measure their fair values. Fair value accounting is applied to the convertible preferred stock warrant liabilities that are recorded at their estimated fair value in the consolidated financial statements.

The FASB defined fair value as the exchange price that would be received for an asset or paid to transfer a liability, or an exit price, in the principal or most advantageous market for that asset or liability in an orderly transaction between market participants on the measurement date, and established a fair value hierarchy that requires an entity to maximize the use of observable inputs, where available, and minimize the use of unobservable inputs when measuring fair value. The FASB set forth three levels of inputs that may be used to measure fair value:

Level 1: Quoted prices in active markets for identical assets or liabilities.

Level 2: Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3: Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability.

To date, the Company has not recorded any impairment charges on marketable securities related to other-than-temporary declines in market value. In determining whether a decline is other than temporary, the Company considers various factors including the length of time and extent to which the market value has been less than cost, the financial condition and near-term prospects of the issuer and the Company's intent and ability to retain its investment in the issuer for a period of time sufficient to allow for any anticipated recovery in market value.

The Company estimates the fair values of investments in corporate agency bond securities, commercial paper and government agencies securities using level 2 inputs, by taking into consideration valuations obtained from third-party pricing services. The pricing services utilize industry standard valuation models, including both income- and market-based approaches, for which all significant inputs are observable, either directly or indirectly, to estimate fair value. These inputs include reported trades of and broker/dealer quotes on the same or similar securities, issuer credit spreads, benchmark securities, prepayment/default projections based on historical data and other observable inputs.

For the six months ended June 30, 2017 and 2018, the Company did not realize any gains or losses on the sale and maturity of available-for-sale securities.

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Cash equivalents and marketable securities, all of which are classified as available-for-sale securities consisted of the following (in thousands):

	At December 31, 2017			
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Money market funds	$ 18,263	$ —	$ —	$ 18,263
Corporate and agency bonds	93,025	—	(301)	92,724
Commercial paper	34,393	—	—	34,393
U.S. government agencies securities	66,255	—	(130)	66,125
Total	$211,936	$ —	$ (431)	$211,505
Classified as:				
Cash and cash equivalents				$ 18,263
Short-term marketable securities				148,092
Long-term marketable securities				45,150
Total cash equivalents and marketable securities				$211,505

	At June 30, 2018			
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Money market funds	$ 34,185	$ —	$ —	$ 34,185
Corporate and agency bonds	82,600	—	(415)	82,185
Commercial paper	24,449	—	—	24,449
U.S. government agencies securities	59,708	—	(83)	59,625
Total	$200,942	$ —	$ (498)	$200,444

	At June 30, 2018			
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
Classified as:				
Cash and cash equivalents				$ 34,185
Short-term marketable securities				150,315
Long-term marketable securities				15,944
Total cash equivalents and marketable securities				$200,444

Cash and cash equivalents in the table above exclude cash of $7.3 million as of December 31, 2017 and $4.7 million as of June 30, 2018.

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As of December 31, 2017 and June 30, 2018, the Company's marketable securities had the following remaining contractual maturities (in thousands):

	At December 31, 2017	
	Amortized Cost	Fair Value
Less than one year	$ 148,280	$148,092
Greater than one year but less than five years	45,394	45,150
Total	$ 193,674	$193,242

	At June 30, 2018	
	Amortized Cost	Fair Value
Less than one year	$ 150,647	$150,315
Greater than one year but less than five years	16,110	15,944
Total	$ 166,757	$166,259

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following table sets forth the estimated fair value of the Company's financial assets and liabilities that were measured at fair value on a recurring basis as of December 31, 2017 and June 30, 2018 (in thousands):

	Fair Value Measurements at December 31, 2017			
	Total	Level 1	Level 2	Level 3
Assets				
Money market funds	$ 18,263	$18,263	$ —	$ —
Corporate and agency bonds	92,724	—	92,724	—
Commercial paper	34,393	—	34,393	—
U.S. government agencies securities	66,125	—	66,125	—
	$211,505	$18,263	$193,242	$ —
Liabilities				
Convertible preferred stock warrant liability	$ 121	$ —	$ —	$ 121
	$ 121	$ —	$ —	$ 121

	Fair Value Measurements at June 30, 2018			
	Total	Level 1	Level 2	Level 3
Assets				
Money market funds	$ 34,185	$34,185	$ —	$ —
Corporate and agency bonds	82,185	—	82,185	—
Commercial paper	24,449	—	24,449	—
U.S. government agencies securities	59,625	—	59,625	—
	$200,444	$34,185	$166,259	$ —
Liabilities				
Convertible preferred stock warrant liability	$ 121	$ —	$ —	$ 121
	$ 121	$ —	$ —	$ 121

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There were no transfers of assets or liabilities between the fair value measurement levels during the six months ended June 30, 2018.

The original estimated fair value of the convertible preferred stock warrants of approximately $28,000, issued in February 2009 in conjunction with entering into a loan and security agreement with a lender, was measured upon issuance using the Black-Scholes option-pricing model. The Company recorded other income of $1,000 for the change in estimated fair value of the warrant liabilities for the six months ended June 30, 2017. The Company did not record any gains or losses related to changes in the estimated fair value of the warrant liabilities for the six months ended June 30, 2018. The inputs used in the determination of the fair value of the warrants as of June 30, 2018 used an estimated fair value per share of the Company's common stock fair value per share, one year for the expected term of the warrant, 68.32% for the stock value volatility using publicly traded peer company volatility as a basis, and 2.11% for the risk-free interest rate on U.S. Treasury securities at 1-year constant maturity.

The following table provides a summary of changes in the fair value of the Company's convertible preferred stock warrant liability (in thousands):

Fair Value Using Level 3 Inputs	Amounts
Balance at December 31, 2016	$ 118
Change in fair value of warrant liability included in other income (expense), net	(1)
Balance at June 30, 2017	$ 117
Balance at December 31, 2017	$ 121
Change in fair value of warrant liability included in other income (expense), net	—
Balance at June 30, 2018	$ 121

4. Research Collaboration and License Agreements

Summary of Collaboration Revenue

The Company recognized revenue from its collaboration and license agreements as follows (in thousands):

	Six Months Ended June 30,	
	2017	2018
Related party collaboration revenue:		
Recognition of upfront license fee	$ 9,400	$ 9,400
Collaboration service revenue	28,518	31,331
Total related party collaboration revenue	$37,918	$40,731

JDRF

In September 2011, the Company entered into a Research, Development and Commercialization Agreement with JDRF International, or JDRF, to conduct a research program to discover potential therapeutics for the treatment of diabetes. Under the terms of the agreement, the Company was eligible to receive research funding of up to $1.8 million. This research funding has been recognized in the service period in which it was earned. During the six months ended June 30, 2018 the Company did not recognize any revenue from this agreement.

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Merck

In February 2015, the Company entered into a research collaboration, product development and license agreement with Merck, covering the discovery, development and commercialization of novel therapies across a range of therapeutic areas (Merck Collaboration Agreement). The collaboration includes an exclusive worldwide license to the GDF15 program (consisting of GDF15 analogs NGM386 and NGM395); the product candidates from the GDF15 program that are being evaluated for the treatment of diabetes, obesity and non-alcoholic steatohepatitis; and a broad, multi-year drug discovery and early development program financially supported by Merck but scientifically directed by the Company. The goal of the drug discovery and early development program is to identify and develop, through human proof-of-concept studies, multiple product candidates for various therapeutic areas. For those compounds resulting from the research and development program that progress through human proof-of-concept studies, Merck has a one-time option to obtain an exclusive, worldwide license. If Merck exercises its option, the Company in turn has the right, at the start of the first Phase 3 clinical study for that compound, to elect to participate in a worldwide cost and profit share with Merck, as well as the option to co-detail the compound in the United States, or the Company can elect instead to receive milestones and royalties from Merck based on its further development and commercialization of the compound. If the Company elects to participate in the cost and profit share, subject to certain limitations, Merck will advance to the Company a portion of its share of the overall development costs, up to a limit of 25% of the overall global costs, which Merck will recoup from the Company's share of any profit ultimately resulting from sales of the compound or, if unsuccessful, other compounds that reach commercialization.

Research and Early Development Program. Pursuant to the collaboration agreement, the Company determines the scientific direction and areas of therapeutic interest, with input from Merck, and is primarily responsible for the conduct of all research, preclinical and early clinical development activities, through human proof of concept. The Company makes the final determinations as to which compounds to advance into and through initial clinical studies, which to progress into human proof-of-concept studies and the design of any such studies, with input from Merck through various governance committees. The Company may terminate its participation in any of the governance committees by providing written notice to Merck of its intention to disband and no longer participate. Under the agreement, Merck reimburses the internal and external costs of the Company's research and early development activities (research phase) in an amount up to $50 million per year, based on an estimated annual budget. If the Company exceeds this budget in a particular year, and if the program is sufficiently advanced as of that time, Merck will fund up to an additional $25 million each year for use in funding IND-enabling or later-staged activities or will provide the Company with the equivalent value in in-kind services for preclinical and clinical development activities.

Merck has the option to extend the initial five-year research phase for two additional two-year periods by paying a fee for each extension. Exercising the option for the first of the two-year periods is required to be communicated by Merck to the Company by March 17, 2019. The level of research funding during the research phase extensions will be negotiated at the time of the extension, subject to certain minimum and maximum funding limits based on a percentage of the then-existing funding. At the end of any research phase, Merck has the right to either require the Company to continue to conduct research and development activities with respect to certain of the then-existing programs for up to three years (tail period), by agreeing to pay all of the Company's internal and external costs, or to take over such selected programs and conduct such research and development activities itself, at its own cost, during the tail period.

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Merck Option to License the Company's Programs. Upon completion of a human proof-of-concept study for a particular compound, regardless of the results of such study, Merck has the one-time option to obtain an exclusive, worldwide license, on specified terms, to that compound, as well as to other molecules that are directed against the same target in the same manner (Optioned Program). If Merck exercises its license option, Merck will be responsible, at its own cost, for any further development and commercialization activities for compounds within that Optioned Program, subject to the Company's options to cost and profit share worldwide and to co-detail those compounds in the United States, as further described below. If Merck does not exercise its license option with respect to a particular compound within 60 days, the Company will retain all rights to research, develop and commercialize that compound and its related molecules on a worldwide basis at the Company's expense, either alone or in partnership with a third party, subject to the payment to Merck of low single digit percentage royalties on any commercial sales of any resulting products.

Company Option to Elect Cost and Profit Share and Merck Financial Assistance. If Merck exercises its license option, then at the point where it has advanced the licensed compound to its first Phase 3 clinical study, the Company has the option for a period of 60 days to share between 25% and 50% of the costs and profits with Merck on that compound (NGM Optioned Products). As part of the Company's election to exercise the option to cost and profit share, the Company will also select the percentage share, between 25% and 50%, that it desires to fund of the total global costs of developing and, if approved, commercializing that NGM Optioned Product. The percentage of any profits the Company will receive from sales of the NGM Optioned Product will be the same as the percentage share the Company elects to contribute to the total global costs of developing the product. The Company's right to participate in cost and profit sharing for each of the compounds that Merck licenses is subject to the following limitation: if, at the point in time when the Company is able to exercise its option for a licensed compound, the actual costs the Company has incurred, plus the prospective costs allocated to the Company across all NGM Optioned Products, plus the costs the Company is electing to incur if it exercises its option for the compound, reaches $1.0 billion (if the research phase ends in 2020), $1.4 billion (if the research phase is extended to 2022) or $1.8 billion (if the research phase is extended to 2024), the Company will not be able to exercise its option on any further licensed compounds that Merck takes forward.

Pursuant to the collaboration agreement, at the Company's election to cost and profit share on a NGM Optioned Product, Merck will advance to the Company an amount equal to 25% of the expected global costs for that NGM Optioned Product, which could cover 100% of the Company's share of the relevant development costs where the Company elects to cost and profit share at the 25% rate, or half of the Company's development cost obligation where the Company elects to cost and profit share at the 50% rate. These advances are subject to an aggregate cap of $500 million in total across all NGM Optioned Products over the term of the collaboration.

Co-Detailing Rights in the United States. For each NGM Optioned Product, the Company also has the option to participate in a portion of the commercial promotion (co-detailing) to prescribers in the United States of the NGM Optioned Product by fielding its own commercial sales force. The Company will be required to make this election prior to receiving regulatory approval in the U.S. for the NGM Optioned Product. The specifics of the participation in co-detailing will be determined by the parties according to guidelines set out in the collaboration agreement. If the Company elects to co-detail with Merck, the Company's costs are included in the overall shared commercialization costs, but it will not share in any greater portion of the profits than it otherwise would be entitled to for that NGM Optioned Product.

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Small Molecule Research and Development. Under the collaboration agreement, the Company also granted Merck a worldwide, exclusive right to conduct research and development on small molecule compounds generated by Merck that have specified activity against any target that the Company is researching or developing under the research phase and about which the Company has generated unique biological insights (Small Molecule Program). If Merck ultimately does not exercise its license option to the compound the Company has taken through a human proof-of-concept study that is directed to any such target, Merck's research license for its own small molecule program will become non-exclusive, but it will retain an exclusive license to any small molecule compounds that it has, as of that time, identified and developed. Merck has sole responsibility for the research and development of any of these small molecule compounds, at its own cost. The Company is eligible to receive milestone and royalty payments on small molecule compounds that are developed by Merck under the Company's license, in some cases at the same rates as those the Company is eligible to receive from Merck for a licensed program originating from the Company's own research and development efforts, provided that, but for use of the Company's proprietary information, Merck would not have discovered such small molecule compounds. However, the Company will not have the option to cost and profit share or the option to co-detail those small molecule products.

Upfront payment; Series E Convertible Preferred Stock Purchase Agreement, Extension of Research Phases(s) and Private Placement. Under the terms of the collaboration agreement, the Company received an upfront payment of $94.0 million. In addition, Merck entered into a stock purchase agreement to purchase 17,666,666 shares of Series E convertible preferred stock at a price of $6.00 per share, resulting in net proceeds of approximately $105.9 million. In April 2015, the Company received the $94.0 million upfront payment.

In connection with the Series E convertible preferred stock purchase agreement, the Company entered into a letter agreement whereby Merck has the irrevocable option to purchase or, if it does not, the Company has the irrevocable option to require Merck to purchase an additional amount of the Company's common stock pursuant to a private placement conducted in parallel with its IPO, up to a limit of the number of shares that will result in Merck owning up to approximately 19.9% of the Company's outstanding shares, at the same price per share as offered to the public. If Merck elects to extend the research phase of the collaboration until March 17, 2022, it has the option to purchase an additional $5.0 million of the Company's common stock at a price per share equal to the last closing price of the Company's shares on the date it notifies the Company of its desire to exercise such option and, if Merck elects again to extend the research phase to March 17, 2024, it has an option to purchase another $5.0 million of the Company's common stock on the same terms; with both options subject to an overall cap on Merck's ownership interest of 19.9%.

Standstill, Lock-Up and Voting Agreements. The Side Letter Agreement also includes standstill provisions providing that for the period ending on the earlier of the end of the initial five-year research term, the announcement of the Company's intent to consummate a change in control transaction (subject to certain exceptions) or the termination of the collaboration agreement, neither Merck nor its representatives will, directly or indirectly, among other things: (i) acquire any of the Company's securities to the extent it would result in Merck owning more than 19.9% of the Company's shares, (ii) solicit proxies for the Company's securities or (iii) participate in a business combination involving the Company, take any action that might result in the Company having to make a public announcement about (i) or (ii) or seek to influence the Company's management or policies, except that Merck is not precluded from making confidential, non-public proposals to the Company or third parties with the Company's express consent. In addition, during the period that ends on the earlier of the end of the initial five-year research term, the announcement of the Company's intent to consummate a

change in control transaction or the date on which Merck's ownership of the Company's securities drops below 5%, Merck has agreed to vote its shares in favor of the Company's nominees to the board of directors, increases in the authorized capital stock of the company and amendments to the Company's equity plans approved by the board of directors, in each case as recommended by the chairman the Company's board of directors. Merck has also agreed, subject to specified exceptions and during the period of the initial five-year research phase, not to sell any of its shares of the Company's capital stock (subject to certain limited exceptions).

The Company identified several significant deliverables under the agreement, including the license and know-how to the GDF15 program, the license to a Small Molecule Program and research and development services to be performed by the Company on behalf of Merck, including research and early development activities up through human proof of concept. The Company concluded that the license to the GDF15 program and the license for the Small Molecule Program do not have stand-alone value to Merck apart from the related research and development services deliverables as there are no other vendors selling similar, competing products on a stand-alone basis and Merck is unable to use the license for its intended purpose without the Company's performance of research and development services. Accordingly, the Company has accounted for the deliverables as one unit of accounting. As such, a total of $94.0 million of revenue is being recognized on a straight-line basis over the period over which the Company expects to fulfill its performance obligations (the performance period), which was determined to be five years. The Company evaluates the performance period at each reporting period.

The Company is also eligible to receive additional payments specific to Merck opting into an Optioned Program. Except for the GDF15 program, each Optioned Program is eligible to receive a one-time payment of $20.0 million upon Merck's exercise of its one-time option to obtain an exclusive, worldwide license for a licensed compound following the completion of a human proof-of-concept study. In addition, if the Company does not opt in to the cost and profit sharing option, then the Company is eligible to receive milestone payments upon the achievement of specific clinical development or regulatory events with respect to the licensed compound for a particular indication in the United States, the European Union and Japan as follows: (i) up to a total of $200.0 million for the first indication; (ii) up to a total of $149.0 million for the second indication; and (iii) up to a total of $100.0 million for the third indication. The Company is also eligible to receive commercial milestone payments of up to $125.0 million payable for each licensed product. In addition, the Company is eligible to receive royalties at ascending low-double digit to mid-teen percentage rates, depending on the level of net sales Merck achieves worldwide for each licensed compound.

The Company has concluded that certain research, clinical development and regulatory milestones that may be received under the collaboration agreement with Merck, if the Company is involved in future product research, development and commercialization, are substantive. Factors considered in the evaluation of the milestones included the degree of risk associated with performance of the milestone, the level of effort and investment required, whether the milestone consideration was reasonable relative to the deliverables, whether there are substantive uncertainties at the date the arrangement was entered into that the milestone will be achieved, whether the products and services are priced at a significant and incremental discount, whether the consideration relates solely to past performance and whether the milestone was earned at least in part based on the Company's performance. Revenues from substantive milestones, if they are non-refundable, are recognized as revenue upon successful accomplishment of the milestones. Research, clinical and regulatory milestones are deemed non-substantive if they are based solely on the collaborator's performance. Non-substantive milestones will be recognized when achieved to the extent the Company has no

remaining performance obligations under the arrangement. Milestone payments earned upon achievement of commercial milestone events will be recognized when earned.

As of December 31, 2017, the Company recorded deferred revenue of $44.1 million, comprised of $41.5 million of upfront payment and $2.6 million relating to advance payments for research and development activities. As of June 30, 2018, the Company recorded deferred revenue of $34.2 million, comprised of $32.1 million of upfront payment and $2.1 million relating to advance payments for research and development activities.

5. Commitments and Contingencies

Operating Lease and Lease Guarantee

In September 2009, the Company entered into an operating lease for a corporate office space and laboratory facility at 630 Gateway Blvd, in South San Francisco, California (630 Gateway) for approximately 50,000 square feet, as amended in June 2014 (2014 Lease Amendment), which expires in November 2020. The 2014 Lease Amendment provided for tenant improvement allowances of $0.8 million. The 2014 Lease Amendment contains scheduled rent increases over the lease term and has an option for the Company to extend the lease for an additional three-year term.

In December 2015, the Company entered into a new operating lease for its corporate office space and laboratory facility at 333 Oyster Point Blvd, South San Francisco, California (333 Oyster Point) for approximately 122,000 square feet that expires in December 2023. The lease provides a tenant improvement allowance of up to $15.2 million that the Company used in 2016 towards $22.3 million in total leasehold improvements that are amortized over the lease term of seven years.

The lease agreement requires a letter of credit in the amount of $2.3 million as a security deposit to the lease, which the Company has recorded as restricted cash. The Company has the right to reduce the letter of credit amount by $0.4 million on each the 3rd anniversary and 4th anniversary of rent commencement date, respectively.

In July 2016, the Company assigned its operating lease of 630 Gateway to Merck, as part of the Company's relocation to 333 Oyster Point. The Company paid rent on 630 Gateway through October 2016 until it completed the move to its new location. As part of the assignment of the lease, the Company is liable to the lessor if Merck defaults on its lease obligations. Therefore, in substance, the Company has guaranteed the lease payments for 630 Gateway, including lease-related expenses such as utilities, property tax, and common area maintenance without any limitations. The Company assessed the need for a potential guarantee liability on the assigned lease, and concluded that the value of the guarantee was insignificant as of June 30, 2018 because of the short duration of the remaining lease term through November 2020, and Merck's credit rating of AA/A1 and subsequent investment in tenant improvements to the facility. As of December 31, 2017 and June 30, 2018, the remaining lease payments due for 630 Gateway were approximately $5.7 million and $4.8 million, respectively.

The Company recognizes rent expense on a straight-line basis over the lease period with the difference recorded as deferred rent. In addition, tenant improvement allowances recorded are amortized as a reduction to rent expense on a straight-line basis over the lease term. Rent expense under these facility operating leases was approximately $1.1 million and $1.1 million for the six months ended June 30, 2017 and 2018, respectively.

NGM BIOPHARMACEUTICALS, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

Future minimum payments under the lease obligations described above are as follows as of June 30, 2018 (in thousands):

Year Ended December 31:	
2018 (six months)	$ 2,388
2019	4,849
2020	4,995
2021	5,141
2022	5,294
2023 and thereafter	5,455
Total	$28,122

6. Convertible Preferred Stock

Convertible Preferred Stock

Convertible preferred stock at December 31, 2017 and June 30, 2018, consisted of the following (in thousands):

	Shares		Issuance Price per Share	Aggregate Liquidation Value	Carrying Value
	Authorized	Outstanding			
Series A	26,589	26,550	$ 1.00	$ 26,550	$ 26,462
Series B	22,156	22,156	2.50	55,389	55,148
Series C	16,656	16,656	3.00	49,970	49,887
Series D	13,200	11,506	5.00	57,530	57,461
Series E	17,667	17,667	6.00	88,335	105,916
	96,268	94,535		$ 277,774	$ 294,874

7. Stockholders' Deficit

Common Stock

As of June 30, 2018, the Company had 12,649,712 shares of common stock outstanding, which includes 99,934 shares subject to repurchase as a result of early exercise of stock options not yet vested. As of June 30, 2018, the Company reserved shares of common stock, on an as-if-converted basis, for issuance as follows (in thousands):

Conversion of convertible preferred stock	94,534,932
Common stock options outstanding	19,398,203
Common stock options available for grant	1,193,038
Warrant to purchase convertible preferred stock	39,274
401(k) Matching Plan	73,503
Total	115,238,950

Stock Option Plan

In January 2018, the Company adopted the 2018 Equity Incentive Plan (the 2018 Plan) for eligible employees, officers, directors, advisors and consultants, which provides for the grant of

incentive and non-statutory stock options, restricted stock awards and stock appreciation rights. The 2018 Plan is the successor to and continuation of the 2008 Equity Inventive Plan (the 2008 Plan). The adoption of the 2018 Plan included the rollover of options available to grant from the 2008 Plan into the 2018 plan. The terms of the stock option agreements, including vesting requirements, are determined by the Board of Directors, subject to the provisions of the 2018 Plan. Options granted by the Company generally vest within four years and are exercisable from the grant date until ten years after the date of grant. Vesting of certain employee options may be accelerated in the event of a change in control of the Company. As of June 30, 2018, 4,116,604 shares of common stock have been authorized for issuance under the 2018 Plan.

Stock options are governed by stock option agreements between the Company and recipients of stock options. The Board of Directors determined the fair value of common stock using valuations prepared by an unrelated third-party valuation firm. The exercise price of each option shall not be less than 100% of the fair market value of the common stock subject to the option on the date the option is granted. A 10% or greater stockholder shall not be granted an incentive stock option unless the exercise price of such option is at least 110% of the fair value of the common stock on the date of grant and the option is not exercisable after the expiration of five years from the grant date. Options become exercisable and expire as determined by the Compensation Committee, provided that the term of incentive stock options may not exceed ten years from the date of grant for options granted to those other than 10% stockholders.

Stock Option Activity

A summary of the outstanding stock options is as follows:

		Outstanding Options			
	Options Available for Grant	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in Years)	Aggregate Intrinsic Value (in thousands)
Balances at December 31, 2017	1,225,208	16,709,748	$ 2.41	6.79	$ 27,814
Additional options authorized	2,891,396				
Options granted	(3,323,800)	3,323,800	4.07		
Options exercised	—	(235,111)	1.02		
Options cancelled	400,234	(400,234)	2.63		
Balances at June 30, 2018	1,193,038	19,398,203	$ 2.70	6.87	$ 26,521
Vested and expected to vest as of June 30, 2018		18,557,344	$ 2.65	6.79	$ 26,347
Outstanding and exercisable as of June 30, 2018		19,398,203	$ 2.70	6.87	$ 26,521

The aggregate intrinsic values of options outstanding, exercisable, vested and expected to vest were calculated as the difference between the exercise price of the options and the estimated fair value of the Company's common stock, as determined by the Board of Directors.

The weighted-average grant date fair value of stock options granted during the six months ended June 30, 2017 and 2018 was $3.85 and $4.07 per share, respectively.

NGM BIOPHARMACEUTICALS, INC.
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Early Exercise of Stock Options

The 2008 and 2018 Plan allows for the granting of options that may be exercised before the options have vested. Shares issued as a result of early exercise that have not vested are subject to repurchase by the Company upon termination of the purchaser's employment or services, at the price paid by the purchaser, and are not deemed to be issued for accounting purposes until those related shares vest. The amounts received in exchange for these shares have been recorded as a liability on the consolidated balance sheets and will be reclassified into common stock and additional paid-in-capital as the shares vest. The Company's right to repurchase these shares generally lapses in equal installments over four years beginning from the original vesting commencement date.

At December 31, 2017 and June 30, 2018, there were 227,655 and 99,934 shares of common stock outstanding, respectively, subject to the Company's right of repurchase at prices ranging from $1.08 to $3.82 per share. At December 31, 2017 and June 30, 2018, the Company recorded $0.4 million and $0.2 million, respectively, as early exercise stock option liabilities associated with shares issued with repurchase rights.

Employee Stock-Based Compensation Expense

Employee and director stock-based compensation expense for the six months ended June 30, 2017 and 2018, was calculated based on awards ultimately expected to vest and has been reduced for estimated forfeitures. The following table summarizes stock-based compensation expense related to stock-based payment awards to employees and directors for the six months ended June 30, 2017 and 2018, which was allocated as follows (in thousands):

	Six Months Ended June 30,	
	2017	2018
Research and development	$2,281	$2,633
General and administrative	1,493	1,795
	$3,774	$4,428

Valuation Assumptions

The Company uses the Black-Scholes option-pricing model to estimate the fair value of stock options at the grant date. The Black-Scholes option-pricing model requires the Company to make certain estimates and assumptions, including assumptions related to the expected price volatility of the Company's stock, the period during which the options will be outstanding, the rate of return on risk-free investments and the expected dividend yield for the Company's stock.

The fair value of stock option awards granted to employees was estimated at the date of grant using a Black-Scholes option-pricing model with the following weighted-average assumptions:

	Six Months Ended June 30,	
	2017	2018
Risk-free interest rate	2.01%	2.59%
Term of options (in years)	6.25	6.25
Expected stock price volatility	71.59%	70.81%
Expected Dividends	—	—

NGM BIOPHARMACEUTICALS, INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

As of June 30, 2018, there was approximately $15.2 million in total unrecognized compensation expense, net of estimated forfeitures, related to unvested options granted to employees and directors under the 2008 Plan and 2018 Plan. The expense is expected to be recognized over a weighted-average period of 2.6 years.

Stock Options Granted to Non-employees

The following table summarizes stock-based compensation expense related to stock-based payment awards to non-employees for the six months ended June 30, 2017 and 2018, which was allocated as follows (in thousands):

	Six Months Ended June 30,	
	2017	2018
Research and development	$ 59	$ 48
General and administrative	—	—
	$ 59	$ 48

8. Income Taxes

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (“Tax Act”) was signed into law making significant changes to the Internal Revenue Code. Changes include, but are not limited to, a corporate tax rate decrease from 35% to 21% effective for tax years beginning after December 31, 2017, eliminating the corporate alternative minimum tax (AMT) and changing how existing AMT credits can be realized, the transition of U.S. international taxation from a worldwide tax system to a territorial system and a one-time transition tax on the mandatory deemed repatriation of cumulative foreign earnings as of December 31, 2017.

On December 22, 2017, Staff Accounting Bulletin No. 118 was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Act. For the six months ended June 30, 2018, the Company noted no additional guidance or information that affects the provisional amounts initially recorded at zero for the transition tax, the realization amount of the federal AMT credit carryovers and the remeasurement of the deferred tax assets for the year ended December 31, 2017. As a result, the Company recorded no adjustment to the transition tax, the federal AMT credit carryovers and the remeasurement of the deferred tax assets. The Company will continue to monitor and analyze any additional guidance and information that may be issued by the federal and state tax authorities. Any subsequent adjustment to these amounts will be recorded to current tax expense in the quarter of 2018 when the analysis is complete.

In January 2018, the FASB released guidance on the accounting for tax on the global intangible low-taxed income (“GILTI”) provisions of the Tax Act. The GILTI provisions impose a tax on foreign income in excess of a deemed return on tangible assets of foreign corporations. The Company has elected to treat any potential GILTI inclusions as a period cost and therefore has not recorded deferred taxes related to GILTI on its foreign subsidiaries. The final impact may differ from these provisional amounts. The Company expects to finalize the accounting for the impacts of US Tax Reform on GILTI during 2018.

NGM BIOPHARMACEUTICALS, INC.
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9. Subsequent Events

The Company has reviewed and evaluated material subsequent events through the unaudited condensed consolidated financial statements' issuance date of August 10, 2018. No subsequent events have been identified for disclosure.

Shares

Common Stock

Goldman Sachs & Co. LLC **Citigroup** **Cowen**

Through and including , 2018 (the 25th day after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

PART II

Information Not Required in Prospectus

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth all expenses, other than the underwriting discounts and commissions, payable by the registrant in connection with the sale of the common stock being registered. All the amounts shown are estimates except the SEC registration fee, the FINRA filing fee and the Nasdaq Global Market listing fees.

SEC registration fee	$ *
FINRA filing fee	*
Nasdaq initial listing fee	*
Legal fees and expenses	*
Accounting fees and expenses	*
Blue sky fees and expenses	*
Printing and engraving expenses	*
Transfer agent and registrar fees and expenses	*
Miscellaneous fees and expenses	*
Total	$ *

* To be completed by amendment.

Item 14. Indemnification of Officers and Directors

Section 145 of the Delaware General Corporation Law provides that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, other than an action by or in the right of the corporation, by reason of the fact that the person is or was a director, officer, employee or agent of the corporation or is or was serving at the corporation's request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses, including attorneys' fees, judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with the action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful. The power to indemnify applies to actions brought by or in the right of the corporation as well, but only to the extent of expenses, including attorneys' fees but excluding judgments, fines and amounts paid in settlement, actually and reasonably incurred by the person in connection with the defense or settlement of the action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that a court of competent jurisdiction shall determine that such indemnity is proper.

Section 145(g) of the Delaware General Corporation Law provides that a corporation shall have the power to purchase and maintain insurance on behalf of its officers, directors, employees and agents, against any liability asserted against and incurred by such persons in any such capacity.

Section 102(b)(7) of the General Corporation Law of the State of Delaware provides that a corporation may eliminate or limit the personal liability of a director to the corporation or its

stockholders for monetary damages for breach of fiduciary duty as a director, provided that such provision shall not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the General Corporation Law of the State of Delaware or (iv) for any transaction from which the director derived an improper personal benefit. No such provision shall eliminate or limit the liability of a director for any act or omission occurring prior to the date when such provision becomes effective.

Our amended and restated certificate of incorporation provides that our directors shall not be liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except to the extent that the exculpation from liabilities is not permitted under the Delaware General Corporation Law as in effect at the time such liability is determined. In addition, our amended and restated certificate of incorporation provides that we may indemnify our directors, officers and other agents of the company to the fullest extent permitted by the laws of the State of Delaware and our amended and restated bylaws provide that we are required to indemnify our directors and executive officers to the fullest extent not prohibited by Delaware General Corporate Law. We have entered into indemnification agreements with each of our directors and officers. These indemnification agreements provide, among other things, that we will indemnify our directors and officers for certain expenses, including damages, judgments, fines, penalties, settlements and costs and attorneys' fees and disbursements, incurred by a director or officer in any claim, action or proceeding arising in his or her capacity as a director or officer of our company or in connection with service at our request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that a director or officer makes a claim for indemnification. We expect to enter into a similar agreement with any new directors or officers.

Our amended and restated bylaws provide that we may purchase and maintain insurance policies on behalf of our directors and officers against specified liabilities for actions taken in their capacities as such, including liabilities under the Securities Act. We have obtained directors' and officers' liability insurance to cover liabilities our directors and officers may incur in connection with their services to us, and plan to expand such coverage to include matters arising under the securities laws prior to the completion of this offering.

In addition, the underwriting agreement related to this offering will provide for indemnification by the underwriters of us and our officers and directors for certain liabilities arising under the Securities Act or otherwise. Our amended and restated investors' rights agreement with certain stockholders also provides for cross-indemnification in connection with the registration of our common stock on behalf of such investors.

Item 15. Recent Sales of Unregistered Securities

The following list sets forth information regarding all unregistered securities issued by us since January 1, 2015:

a) From January 1, 2015 to date, we granted to our directors, officers, employees and consultants options to purchase an aggregate of 15,479,704 shares of common stock under our 2008 Equity Incentive Plan and 2018 Equity Incentive Plan at exercise prices ranging from $2.00 to $4.79 per share.

b) From January 1, 2015 to date, we issued and sold to our directors, officers, employees and consultants an aggregate of 2,171,829 shares of common stock upon the exercise of options under our 2008 Equity Incentive Plan at exercise prices ranging from $0.10 to $3.85 per share, for aggregate consideration of $3.4 million. None of the options granted under the 2018 Equity Incentive Plan have been exercised.

c) From January 1, 2015 to date, we issued and sold 84,654 shares of our common stock to the trustee under the NGM Biopharmaceuticals Matching Plan for aggregate consideration of $291,102.

d) In February 2015, we issued and sold an aggregate of 7,314,000 shares of our Series D convertible preferred stock to 20 accredited investors at a per share price of $5.00, for aggregate consideration of $36.6 million.

e) In March 2015, we issued and sold an aggregate of 50,000 shares of our Series D convertible preferred stock to one accredited investor at a per share price of $5.00, for aggregate consideration of $250,000.

f) In March 2015, we issued and sold an aggregate of 17,666,666 shares of our Series E convertible preferred stock to one accredited investor at a per share price of $6.00, for aggregate consideration of $106.0 million.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or any public offering. Unless otherwise specified above, we believe these transactions were exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act (and Regulation D promulgated thereunder), or Rule 701 promulgated under Section 3(b) of the Securities Act as transactions by an issuer not involving any public offering or under benefit plans and contracts relating to compensation as provided under Rule 701. The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed on the share certificates issued in these transactions. All recipients had adequate access, through their relationships with us, to information about us. The sales of these securities were made without any general solicitation or advertising.

Item 16. Exhibits and Financial Statement Schedules

(a) Exhibits

The following exhibits are filed as part of this Registration Statement:

Exhibit number	Description of exhibit
1.1*	Form of Underwriting Agreement.
3.1	Amended and Restated Certificate of Incorporation of NGM Biopharmaceuticals, Inc., as currently in effect.
3.2*	Form of Amended and Restated Certificate of Incorporation of NGM Biopharmaceuticals, Inc., to be in effect upon completion of this offering.
3.3	Amended and Restated Bylaws of NGM Biopharmaceuticals, Inc., as currently in effect.
3.4*	Form of Amended and Restated Bylaws of the NGM Biopharmaceuticals, Inc. to be in effect upon completion of this offering.
4.1	Amended and Restated Investors' Rights Agreement among the Registrant and certain of its stockholders, dated March 20, 2015.
4.2*	Form of Common Stock Certificate.
5.1*	Opinion of Cooley LLP.
10.1	2008 Equity Incentive Plan, as amended.

Exhibit number	Description of exhibit
10.2	Form of Stock Option Agreement and Stock Option Grant Notice under the 2008 Equity Incentive Plan.
10.3*	Amended and Restated 2018 Equity Incentive Plan, to be in effect upon the completion of this offering.
10.4*	Forms of Stock Option Agreement and Notice of Grant of Stock Option under the Amended and Restated 2018 Equity Incentive Plan, to be in effect upon the completion of this offering.
10.5*	Forms of Restricted Stock Unit Agreement and Notice of Grant of Restricted Stock Unit under the Amended and Restated 2018 Equity Incentive Plan, to be in effect upon the completion of this offering.
10.6*	2018 Employee Stock Purchase Plan, to be in effect upon completion of this offering.
10.7*	Form of Indemnification Agreement, by and between NGM Biopharmaceuticals, Inc. and each of its directors and executive officers.
10.8*	NGM Biopharmaceuticals, Inc. Non-Employee Director Compensation Policy.
10.9	Sublease Agreement, by and between NGM Biopharmaceuticals, Inc. and AMGEN Inc., dated December 11, 2015.
10.10*	Executive Employment Agreement, by and between NGM Biopharmaceuticals, Inc. and William J. Rieflin.
10.11*	Executive Employment Offer Letter, by and between NGM Biopharmaceuticals, Inc. and Jin-Long Chen, Ph.D.
10.12*	Executive Employment Agreement, by and between NGM Biopharmaceuticals, Inc. and Jeffrey Jonker.
10.13*	Executive Employment Offer Letter, by and between NGM Biopharmaceuticals, Inc. and Aetna Wun Trombley, Ph.D.
10.14*	Executive Employment Agreement, by and between NGM Biopharmaceuticals, Inc. and David Woodhouse, Ph.D.
10.15†	Research Collaboration, Product Development and License Agreement by and between NGM Biopharmaceuticals, Inc. and Merck Sharp & Dohme Corp., dated as of February 18, 2015.
10.16†	First Amendment to Research Collaboration, Product Development and License Agreement by and between NGM Biopharmaceuticals, Inc. and Merck Sharp & Dohme Corp., dated as of January 1, 2016.
10.17	Letter Agreement, by and between NGM Biopharmaceuticals, Inc. and Merck Sharp & Dohme Corp., dated as of March 20, 2015.
10.18	Warrant to Purchase Stock, by and between NGM Biopharmaceuticals, Inc. and Silicon Valley Bank, dated February 3, 2009.
23.1*	Consent of Cooley LLP (included in Exhibit 5.1).
23.2*	Consent of Independent Registered Public Accounting Firm.
24.1*	Power of Attorney (see page II-6 of this Form S-1).

* To be filed by amendment.
† Confidential treatment requested.

(b) Financial Statement Schedules

None.

Item 17. Undertakings

The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers, and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable. In the event that a claim for indemnification by the registrant against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer, or controlling person of the registrant in the successful defense of any action, suit, or proceeding) is asserted by such director, officer, or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b) (1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of South San Francisco, State of California, on , 2018.

NGM BIOPHARMACEUTICALS, INC.

By: _____
William J. Rieflin
Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints William J. Rieflin and David J. Woodhouse, and each of them, as his or her true and lawful attorneys-in-fact and agents, each with the full power of substitution, for him or her and in his or her name, place or stead, in any and all capacities, to sign any and all amendments to this Registration Statement (including post-effective amendments), and to sign any registration statement for the same offering covered by this Registration Statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their, his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed below by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
William J. Rieflin	Chief Executive Officer and Director *(principal executive officer)*	, 2018
David J. Woodhouse, Ph.D.	Chief Financial Officer *(principal financial officer and principal accounting officer)*	, 2018
Jin-Long Chen, Ph.D.	Chief Scientific Officer and Director	, 2018
David V. Goeddel, Ph.D.	Director	, 2018
Suzanne Sawochka Hooper	Director	, 2018
Mark Leschly	Director	, 2018

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Signature	Title	Date
David Schnell, M.D.	Director	, 2018
Peter Svennilson	Director	, 2018
McHenry T. Tichenor, Jr.	Director	, 2018

AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF NGM BIOPHARMACEUTICALS, INC.

William J. Rieflin hereby certifies that:

ONE: The original name of this company is NGM Biopharmaceuticals, Inc. and the date of filing the original Certificate of Incorporation of this company with the Secretary of State of the State of Delaware was December 20, 2007.

TWO: He is the duly elected and acting Chief Executive Officer of NGM Biopharmaceuticals, Inc., a Delaware corporation.

THREE: The Certificate of Incorporation of this company is hereby amended and restated to read as follows:

I.

The name of this company is NGM Biopharmaceuticals, Inc., (the "***Company***" or the "***Corporation***").

II.

The address of the registered office of the Company in the State of Delaware is 615 South DuPont Highway, City of Dover, County of Kent and the name of the registered agent of the Company in the State of Delaware at such address is National Corporate Research, Ltd.

III.

The purpose of the Company is to engage in any lawful act or activity for which a corporation may be organized under the Delaware General Corporation Law ("***DGCL***").

IV.

A. The Company is authorized to issue two classes of stock to be designated, respectively, "Common Stock" and "Preferred Stock." The total number of shares which the Company is authorized to issue is 225,268,206 shares, 129,000,000 shares of which shall be Common Stock (the "***Common Stock***") and 96,268,206 shares of which shall be Preferred Stock (the "***Preferred Stock***"). The Preferred Stock shall have a par value of one tenth of one cent ($0.001) per share and the Common Stock shall have a par value of one tenth of one cent ($0.001) per share.

B. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares of Common Stock then outstanding) by the affirmative vote of the holders of a majority of the stock of the Company entitled to vote (voting together as a single class on an as-if-converted basis).

C. 26,589,274 of the authorized shares of Preferred Stock are hereby designated "Series A Preferred Stock" (the "***Series A Preferred***").

D. 22,155,600 of the authorized shares of Preferred Stock are hereby designated "Series B Preferred Stock" (the "***Series B Preferred***").

E. 16,656,666 of the authorized shares of Preferred Stock are hereby designated "Series C Preferred Stock" (the "***Series C Preferred***").

F. 13,200,000 of the authorized shares of Preferred Stock are hereby designated "Series D Preferred Stock" (the "***Series D Preferred***").

G. 17,666,666 of the authorized shares of Preferred Stock are hereby designated "Series E Preferred Stock" (the "***Series E Preferred***" and together with the Series A Preferred, Series B Preferred, Series C Preferred and Series D Preferred, the "***Series Preferred***").

H. The rights, preferences, privileges, restrictions and other matters relating to the Series Preferred are as follows:

1. DIVIDEND RIGHTS.

(a) Holders of Series Preferred, in preference to the holders of Common Stock, shall be entitled to receive, when, as and if declared by the Board of Directors (the "***Board***"), but only out of funds that are legally available therefor, cash dividends at the rate of eight percent (8%) of the applicable Original Issue Price (as defined below) per annum on each outstanding share of Series Preferred. Such dividends shall be payable only when, as and if declared by the Board and shall be non-cumulative.

(b) The "***Original Issue Price***" of the Series A Preferred shall be one dollar ($1.00) per share (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof). The "***Original Issue Price***" of the Series B Preferred shall be two dollars and fifty cents ($2.50) per share (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof). The "***Original Issue Price***" of the Series C Preferred shall be three dollars ($3.00) per share (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof). The "***Original Issue Price***" of the Series D Preferred shall be five dollars ($5.00) per share (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof). The "***Original Issue Price***" of the Series E Preferred shall be six dollars ($6.00) per share (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof).

(c) So long as any shares of Series Preferred are outstanding, the Company shall not pay or declare any dividend, whether in cash or property, or make any other distribution on the Common Stock, or purchase, redeem or otherwise acquire for value any shares of Common Stock until all dividends as set forth in Section 1(a) above on the Series Preferred shall have been paid or declared and set apart, except for:

(i) acquisitions of Common Stock by the Company pursuant to agreements which permit the Company to repurchase such shares at cost (or the lesser of cost or fair market value) upon termination of services to the Company;

(ii) acquisitions of Common Stock in exercise of the Company's right of first refusal to repurchase such shares; or

(iii) distributions to holders of Common Stock in accordance with Sections 3 and 4.

(d) In the event dividends are paid on any share of Common Stock, the Company shall pay an additional dividend on all outstanding shares of Series Preferred in a per share amount equal (on an as-if-converted to Common Stock basis) to the amount paid or set aside for each share of Common Stock.

(e) The provisions of Sections 1(c) and 1(d) shall not apply to a dividend payable solely in Common Stock to which the provisions of Section 5(f) hereof are applicable, or any repurchase of any outstanding securities of the Company that is approved by the Board.

(f) A distribution to the Company's stockholders may be made without regard to the preferential dividends arrears amount or any preferential rights amount (each as determined under applicable law).

2. VOTING RIGHTS.

(a) General Rights. Except as otherwise set forth in this Section 2, each holder of shares of the Series Preferred shall be entitled to the number of votes equal to the number of shares of Common Stock into which such shares of Series Preferred could be converted (pursuant to Section 5 hereof) immediately after the close of business on the record date fixed for such meeting or the effective date of such written consent and shall have voting rights and powers equal to the voting rights and powers of the Common Stock and shall be entitled to notice of any stockholders' meeting in accordance with the bylaws of the Company. Except as otherwise provided herein or as required by law, the Series Preferred shall vote together with the Common Stock at any annual or special meeting of the stockholders and not as a separate class, and may act by written consent in the same manner as the Common Stock.

(b) Separate Vote of Series Preferred. For so long as at least 20,000,000 shares of Series Preferred (subject in either case to adjustment for any stock split, reverse stock split or other similar event affecting the Series Preferred after the filing date hereof) remain outstanding, in addition to any other vote or consent required herein or by law, the vote or written consent of the holders of at least fifty-five percent (55%) of the outstanding Series Preferred (the "***Requisite Holders***") shall be necessary for effecting or validating the following actions (whether by merger, recapitalization or otherwise):

(i) Amend any provision of this Amended and Restated Certificate of Incorporation or the Bylaws of the Company so as to amend, alter or repeal the voting or other powers, preferences, or other special rights, privileges or restrictions of the Series Preferred;

(ii) Any increase or decrease in the authorized number of shares of Common Stock or Preferred Stock or any series of Preferred Stock;

(iii) Any authorization or any designation, whether by reclassification or otherwise, of any new class or series of stock or any other securities convertible into equity securities of the Company ranking on a parity with or senior to the Series Preferred in right of redemption, liquidation preference, voting, registration, antidilution protection or dividend rights or any increase in the authorized or designated number of any such new class or series;

(iv) Any redemption of shares (except for acquisitions of Common Stock by the Company permitted by Section 1(c)(i), (ii) and (iii) hereof which have been approved by the Board, including a majority of the Series Preferred Representatives (as defined in Section 2(c) hereof));

(v) Any Liquidation Event (as defined in Section 3 hereof), any agreement by the Company or its stockholders regarding an Asset Transfer or Acquisition (each as defined in Section 4 hereof) or any other merger or consolidation;

(vi) Any increase or decrease in the authorized number of members of the Company's Board;

(vii) Any agreement by the Company which encumbers all or substantially all of Company's property or business or grants an exclusive license for all or substantially all of its intellectual property assets;

(viii) Any incursion by the Company of indebtedness for borrowed money in excess of $5,000,000 in the aggregate at any time; or

(ix) Any acquisition by the Company of any assets, rights or equity interests in any third party with a value individually in excess of $5,000,000, whether by assets purchase, license, merger or otherwise; *excluding, however,* investments made pursuant to an investment policy approved by the Board of Directors.

(c) Election of Board of Directors.

(i) For so long as at least 20,000,000 shares of Series Preferred (subject in either case to adjustment for any stock split, reverse stock split or other similar event affecting the Series Preferred after the filing date hereof) remain outstanding, the holders of Series Preferred (but excluding the Series E Preferred), voting as a single class, shall be entitled to elect five (5) members of the Board (the "***Series Preferred Representatives***") at each meeting or pursuant to each consent of the Company's stockholders for the election of directors, and to remove from office such directors and to fill any vacancy caused by the resignation, death or removal of such directors.

(ii) The holders of Common Stock, voting as a separate class, shall be entitled to elect two (2) members of the Board at each meeting or pursuant to each consent of the Company's stockholders for the election of directors, and to remove from office such directors and to fill any vacancy caused by the resignation, death or removal of such directors.

(iii) The holders of Common Stock and Series Preferred (but excluding the Series E Preferred), voting together as a single class on an as-if-converted basis, shall be entitled to elect all remaining members of the Board at each meeting or pursuant to each consent of the Company's stockholders for the election of directors, and to remove from office such directors and to fill any vacancy caused by the resignation, death or removal of such directors.

(iv) Notwithstanding the provisions of Section 223(a)(1) and 223(a)(2) of the Delaware General Corporation Law, any vacancy, including newly created directorships resulting from any increase in the authorized number of directors or amendment of this Restated Certificate, and vacancies created by removal or resignation of a director, may be filled by a majority of the directors then in office, though less than a quorum, or by a sole remaining director, and the directors so chosen shall hold office until the next annual election and until their successors are duly elected and shall qualify, unless sooner displaced; provided, however, that where such vacancy occurs among the directors elected by the holders of a class or series of stock, the holders of shares of such class or series may override the Board of Directors' action to fill such vacancy by (i) voting for their own designee to fill such vacancy at a meeting of the Company's stockholders or (ii) written consent, if the consenting stockholders hold a sufficient number of shares to elect their designee at a meeting of the stockholders in which all members of such class or series are present and voted. Any director may be removed during his or her term of office without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders, and any vacancy thereby created may be filled by the holders of that class or series of stock represented at the meeting or pursuant to written consent. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director.

(v) No person entitled to vote at an election for directors may cumulate votes to which such person is entitled unless required by applicable law at the time of such election. During such time or times that applicable law requires cumulative voting, every stockholder entitled to vote at an election for directors may cumulate such stockholder's votes and give one candidate a number of votes equal to the number of directors to be elected multiplied by the number of votes to which such stockholder's shares are otherwise entitled, or distribute the stockholder's votes on the same principle among as many candidates as such stockholder desires. No stockholder, however, shall be entitled to so cumulate such stockholder's votes unless (A) the names of such candidate or candidates have been placed in nomination prior to the voting and (B) the stockholder has given notice at the meeting, prior to the voting, of such stockholder's intention to cumulate such stockholder's votes. If any stockholder has given proper notice to cumulate votes, all stockholders may cumulate their votes for any candidates who have been properly placed in nomination. Under cumulative voting, the candidates receiving the highest number of votes, up to the number of directors to be elected, are elected.

3. LIQUIDATION RIGHTS.

(a) Upon any liquidation, dissolution, or winding up of the Company, whether voluntary or involuntary (a "***Liquidation Event***"), before any distribution or payment shall be made to the holders of any Common Stock, the holders of Series Preferred shall be entitled to be paid out of the assets of the Company legally available for distribution for each share of Series Preferred held by them, an amount per share of Series Preferred equal to their respective Original Issue Price plus all declared and unpaid dividends on the Series Preferred; provided, however, solely with respect to this Section 3, the applicable Original Issue Price of the Series E Preferred for purposes of a distribution hereunder shall be $5.00 per share (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof, pursuant to this Amended and Restated Certificate of Incorporation). If, upon any such Liquidation Event, the assets of the Company shall be insufficient to make payment in full to all holders of Series Preferred of the liquidation preference set forth in this Section 3(a), then such assets (or consideration) shall be distributed among the holders of Series Preferred at the time outstanding, ratably in proportion to the full amounts to which they would otherwise be respectively entitled.

(b) After the payment of the full liquidation preference of the Series Preferred as set forth in Section 3(a) above, the remaining assets of the Company legally available for distribution, if any, shall be distributed ratably to the holders of the Common Stock.

(c) The rights under Section 3(a) hereof may be waived by the Requisite Holders.

4. ASSET TRANSFER OR ACQUISITION RIGHTS.

(a) In the event that the Company is a party to an Acquisition or Asset Transfer (as hereinafter defined), then each holder of Series Preferred shall be entitled to receive, for each share of Series Preferred then held, out of the proceeds of such Acquisition or Asset Transfer, the greater of the amount of cash, securities or other property to which such holder would be entitled to receive in a Liquidation Event pursuant to (i) Section 3(a) and 3(b) above or (ii) the amount of cash, securities or other property to which such holder would be entitled to receive in a Liquidation Event with respect to such shares if such shares had been converted to Common Stock immediately prior to such Acquisition or Asset Transfer.

(b) For the purposes of this Section 4: (i) "***Acquisition***" shall mean (A) any consolidation or merger of the Company with or into any other corporation or other entity or person, or any other corporate reorganization, other than any such consolidation, merger or reorganization in which the stockholders of the Company immediately prior to such consolidation, merger or reorganization, continue to hold at least a majority of the voting power of the surviving entity in substantially the same proportions (or, if the surviving entity is a wholly owned subsidiary, its parent) immediately after such consolidation, merger or reorganization; or (B) any transaction or series of related transactions to which the Company is a party in which any shares of Series Preferred are converted into any other property or security other than Common Stock; provided that an Acquisition shall not include (1) any transaction or series of transactions principally for bona fide equity financing purposes in which cash is received by the Company or any successor or indebtedness of the Company is cancelled or converted or a combination thereof or (2) a merger effected exclusively to change the domicile of the Company; and (ii) "***Asset Transfer***" shall mean a sale, lease, exclusive license or other disposition of all or substantially all of the assets of the Company.

(c) In any Acquisition or Asset Transfer, if the consideration to be received is securities of a corporation or property other than cash, its value will be deemed its fair market value as determined in good faith by the Board.

(d) The rights under Section 4(a) hereof may be waived by the Requisite Holders.

5. CONVERSION RIGHTS.

The holders of the Series Preferred shall have the following rights with respect to the conversion of the Series Preferred into shares of Common Stock (the "***Conversion Rights***"):

(a) Optional Conversion. Subject to and in compliance with the provisions of this Section 5, any shares of Series Preferred may, at the option of the holder, be converted at any time into fully-paid and nonassessable shares of Common Stock. The number of shares of Common Stock to which a holder of Series Preferred shall be entitled upon conversion shall be the product obtained by multiplying the "Series Preferred Conversion Rate" then in effect for such series (determined as provided in Section 5(b)) by the number of shares of Series Preferred being converted.

(b) Series Preferred Conversion Rate. The conversion rate in effect at any time for conversion of any series of Series Preferred (the "***Series Preferred Conversion Rate***" for such series) shall be the quotient obtained by dividing the Original Issue Price of such series of Series Preferred by the applicable "Series Preferred Conversion Price," calculated as provided in Section 5(c).

(c) Series Preferred Conversion Price. The conversion price for each series of Series Preferred shall initially be the Original Issue Price of such series of Series Preferred (the "***Series Preferred Conversion Price***" for such series). Such initial Series Preferred Conversion Price shall be adjusted from time to time in accordance with this Section 5. All references to the Series Preferred Conversion Price herein shall mean the applicable Series Preferred Conversion Price as so adjusted.

(d) Mechanics of Conversion. Each holder of Series Preferred who desires to convert the same into shares of Common Stock pursuant to this Section 5 shall surrender the certificate or certificates therefor, duly endorsed, at the office of the Company or any transfer agent for the Series Preferred, and shall give written notice to the Company at such office that such holder elects to convert the same. Such notice shall state the number of shares of Series Preferred being converted. Thereupon, the Company shall promptly issue and deliver at such office to such holder a certificate or certificates for the number of shares of Common Stock to which such holder is entitled and shall promptly pay (i) in cash or, to the extent sufficient funds are not then legally available therefor, in Common Stock (at the Common Stock's fair market value determined by the Board as of the date of such conversion), any declared and unpaid dividends on the shares of Series Preferred being converted and (ii) in cash (at the Common Stock's fair market value determined by the Board as of the date of conversion) the value of any fractional share of Common Stock otherwise issuable to any holder of Series Preferred. Such conversion shall be deemed to have been made at the close of business on the date of such surrender of the certificates representing the shares of Series Preferred to be converted, and the person entitled to receive the shares of Common Stock issuable upon such conversion shall be treated for all purposes as the record holder of such shares of Common Stock on such date.

(e) Adjustment for Stock Splits and Combinations. If at any time or from time to time on or after the date that the first share of Series E Preferred is issued (the "***Original Issue Date***") the Company effects a subdivision of the outstanding Common Stock without a corresponding subdivision of any series of Series Preferred, then the applicable Series Preferred Conversion Price in effect immediately before that subdivision shall be proportionately decreased. Conversely, if at any time or from time to time after the Original Issue Date the Company combines the outstanding shares of Common Stock into a smaller number of shares without a corresponding combination of any series of Series Preferred, then the applicable Series Preferred Conversion Price in effect immediately before the combination shall be proportionately increased. Any adjustment under this Section 5(e) shall become effective at the close of business on the date the subdivision or combination becomes effective.

(f) Adjustment for Common Stock Dividends and Distributions. If at any time or from time to time on or after the Original Issue Date the Company pays to holders of Common Stock a dividend or other distribution in additional shares of Common Stock, each Series Preferred Conversion Price then in effect shall be decreased as of the time of such issuance, as provided below:

(i) Each Series Preferred Conversion Price shall be adjusted by multiplying such Series Preferred Conversion Price as then in effect by a fraction equal to:

(A) the numerator of which is the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance, and

(B) the denominator of which is the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance plus the number of shares of Common Stock issuable in payment of such dividend or distribution;

(ii) If the Company fixes a record date to determine which holders of Common Stock are entitled to receive such dividend or other distribution, each Series Preferred Conversion Price shall be fixed as of the close of business on such record date and the number of shares of Common Stock shall be calculated immediately prior to the close of business on such record date; and

(iii) If such record date is fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, then each Series Preferred Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter each such Series Preferred Conversion Price shall be adjusted pursuant to this Section 5(f) to reflect the actual payment of such dividend or distribution.

(g) Adjustment for Reclassification, Exchange, Substitution, Reorganization, Merger or Consolidation. If at any time or from time to time on or after the Original Issue Date the Common Stock issuable upon the conversion of the Series Preferred is changed into the same or a different number of shares of any class or classes of stock, whether by recapitalization, reclassification, merger, consolidation or otherwise (other than an Acquisition or Asset Transfer as defined in Section 4 or a subdivision or combination of shares or stock dividend provided for elsewhere in this Section 5), in any such event each holder of Series Preferred shall then have the right to convert such stock into the kind and amount of stock and other securities and property receivable upon such recapitalization, reclassification, merger, consolidation or other change by holders of the maximum number of shares of Common Stock into which such shares of Series Preferred could have been converted immediately prior to such recapitalization, reclassification, merger, consolidation or change, all subject to further adjustment as provided herein or with respect to such other securities or property by the terms thereof. In any such case, appropriate adjustment shall be made in the application of the provisions of this Section 5 with respect to the rights of the holders of Series Preferred after the capital reorganization to the end that the provisions of this Section 5 (including adjustment of each Series Preferred Conversion Price then in effect and the number of shares issuable upon conversion of the Series Preferred) shall be applicable after that event and be as nearly equivalent as practicable.

(h) Sale of Shares Below Series Preferred Conversion Price.

(i) If at any time or from time to time on or after the Original Issue Date the Company issues or sells, or is deemed by the express provisions of this Section 5(h) to have issued or sold, Additional Shares of Common Stock (as defined below), other than as provided in Sections 5(e), 5(f) or 5(g) above, for an Effective Price (as defined below) less than the then effective Series Preferred Conversion Price for a series of Series Preferred (a "***Qualifying Dilutive Issuance***"), then and in each such case, the applicable then- existing Series Preferred Conversion Price shall be reduced, as of the opening of business on the date of such issue or sale, to a price determined by multiplying the applicable Series Preferred Conversion Price in effect immediately prior to such issuance or sale by a fraction equal to:

(A) the numerator of which shall be (A) the number of shares of Common Stock deemed outstanding (as determined below) immediately prior to such issue or sale, plus (B) the number of shares of Common Stock that the Aggregate Consideration (as defined below) received or deemed received by the Company for the total number of Additional Shares of Common Stock so issued would purchase at the applicable then-existing Series Preferred Conversion Price, and

(B) the denominator of which shall be the number of shares of Common Stock deemed outstanding (as determined below) immediately prior to such issue or sale plus the total number of Additional Shares of Common Stock so issued.

For the purposes of the preceding sentence, the number of shares of Common Stock deemed to be outstanding as of a given date shall be the sum of (A) the number of shares of Common Stock outstanding, (B) the number of shares of Common Stock into which the then outstanding shares of Series Preferred could be converted if fully converted on the day immediately preceding the given date and (C) the number of shares of Common Stock that are issuable upon the exercise or conversion of all other rights, options and convertible securities outstanding on the day immediately preceding the given date.

Notwithstanding the foregoing, in the event that a holder of Series E Preferred does not purchase all of such holder's Pro Rata Allocation (as defined below) in a Qualified Financing (as defined below), then for purposes of Section 5(h) with respect to triggering a Qualifying Dilutive Issuance and with respect to any corresponding adjustment on account of such issuance, the applicable Series Preferred Conversion Price for the shares of Series E Preferred held by such holder shall be $5.00 (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof, pursuant to this Amended and Restated Certificate of Incorporation).

"***Pro Rata Allocation***" shall be that number of shares that a holder of Series E Preferred is entitled to purchase on a *pro rata* basis pursuant to Section 4.1 of the Amended and Restated Investor Rights Agreement dated on or about March 19, 2015, by and among the Company and the parties thereto (as amended, the "***IRA***") in a Qualified Financing, provided that such Pro Rata Allocation is not properly waived under the IRA by the requisite parties necessary for such waiver.

"***Qualified Financing***" means any bona fide financing after the date hereof (but excluding any shares sold pursuant to the Series D Purchase Agreement (as defined below)) in which the Company sells Equity Securities (as defined in the IRA) that are subject to the right of first refusal set forth in Section 4.1 of the IRA; provided, however, that such financing is consummated prior to (i) the Company's first firm commitment underwritten public offering of its Common Stock registered under the Securities Act or (ii) a Liquidation Event.

(ii) No adjustment shall be made to any Series Preferred Conversion Price in an amount less than one cent per share. Any adjustment required by this Section 5(h) shall be rounded to the nearest one cent $0.01 per share. Any adjustment otherwise required by this Section 5(h) that is not required to be made due to the preceding two sentences shall be included in any subsequent adjustment to the applicable Series Preferred Conversion Price.

(iii) For the purpose of making any adjustment required under this Section 5(h), the aggregate consideration received by the Company for any issue or sale of securities (the "***Aggregate Consideration***") shall be defined as: (A) to the extent it consists of cash, be computed at the gross amount of cash received by the Company before deduction of any underwriting or similar commissions, compensation or concessions paid or allowed by the Company in connection with such issue or sale and without deduction of any expenses payable by the Company, (B) to the extent it consists of property other than cash, be computed at the fair value of that property as determined in good faith by the Board and (C) if Additional Shares of Common Stock, Convertible Securities (as defined below) or rights or options to purchase either Additional Shares of Common Stock or Convertible Securities are issued or sold together with other stock or securities or other assets of the Company for a consideration that covers both, be computed as the portion of the consideration so received that may be reasonably determined in good faith by the Board to be allocable to such Additional Shares of Common Stock, Convertible Securities or rights or options.

(iv) For the purpose of the adjustment required under this Section 5(h), if the Company issues or sells (x) Preferred Stock or other stock, options, warrants, purchase rights or other securities convertible into Additional Shares of Common Stock (such convertible stock or securities being herein referred to as "***Convertible Securities***") or (y) rights or options for the purchase of Additional Shares of Common Stock or Convertible Securities and if the Effective Price of such Additional Shares of Common Stock is less than any Series Preferred Conversion Price, in each case the Company shall be deemed to have issued at the time of the issuance of such rights or options or Convertible Securities the maximum number of Additional Shares of Common Stock issuable upon exercise or conversion thereof and to have received as consideration for the issuance of such shares an amount equal to the total amount of the consideration, if any, received by the Company for the issuance of such rights or options or Convertible Securities plus:

(A) in the case of such rights or options, the minimum amounts of consideration, if any, payable to the Company upon the exercise of such rights or options; and

(B) in the case of Convertible Securities, the minimum amounts of consideration, if any, payable to the Company upon the conversion thereof (other than by cancellation of liabilities or obligations evidenced by such Convertible Securities); *provided* that if the minimum amounts of such consideration cannot be ascertained, but are a function of antidilution or similar protective clauses, the Company shall be deemed to have received the minimum amounts of consideration without reference to such clauses.

(C) If the minimum amount of consideration payable to the Company upon the exercise or conversion of rights, options or Convertible Securities is reduced over time or on the occurrence or non-occurrence of specified events other than by reason of antidilution adjustments, the Effective Price shall be recalculated using the figure to which such minimum amount of consideration is reduced; *provided further,* that if the minimum amount of consideration payable to the Company upon the exercise or conversion of such rights, options or Convertible Securities is subsequently increased, the Effective Price shall be again recalculated using the increased minimum amount of consideration payable to the Company upon the exercise or conversion of such rights, options or Convertible Securities.

(D) No further adjustment of any Series Preferred Conversion Price, as adjusted upon the issuance of such rights, options or Convertible Securities, shall be made as a result of the actual issuance of Additional Shares of Common Stock or the exercise of any such rights or options or the conversion of any such Convertible Securities. If any such rights or options or the conversion privilege represented by any such Convertible Securities shall expire without having been exercised, the applicable Series Preferred Conversion Price, as adjusted upon the issuance of such rights, options or Convertible Securities shall be readjusted to the Series Preferred Conversion Price that would have been in effect had an adjustment been made on the basis that the only Additional Shares of Common Stock so issued were the Additional Shares of Common Stock, if any, actually issued or sold on the exercise of such rights or options or rights of conversion of such Convertible Securities, and such Additional Shares of Common Stock, if any, were issued or sold for the consideration actually received by the Company upon such exercise, plus the consideration, if any, actually received by the Company for the granting of all such rights or options, whether or not exercised, plus the consideration received for issuing or selling the Convertible Securities actually converted, plus the consideration, if any, actually received by the Company (other than by cancellation of liabilities or obligations evidenced by such Convertible Securities) on the conversion of such Convertible Securities, *provided* that such readjustment shall not apply to prior conversions of Series Preferred.

(v) For the purpose of making any adjustment to the Conversion Price of the Series Preferred required under this Section 5(h), "***Additional Shares of Common Stock***" shall mean all shares of Common Stock issued by the Company or deemed to be issued pursuant to this Section 5(h) (including shares of Common Stock subsequently reacquired or retired by the Company), other than:

(A) shares of Common Stock issued upon conversion of the Series Preferred;

(B) shares of Common Stock or Convertible Securities issued after the Original Issue Date to employees, officers or directors of, or consultants or advisors to, the Company or any subsidiary pursuant to stock purchase or stock option plans or other arrangements that are approved by the Board, including the majority of the Series Preferred Representatives;

(C) shares of Common Stock issued pursuant to the exercise of Convertible Securities outstanding as of the Original Issue Date;

(D) shares of Common Stock or Convertible Securities issued for consideration other than cash pursuant to a merger, consolidation, acquisition, strategic alliance or similar business combination approved by the Board, including the majority of the Series Preferred Representatives;

(E) shares of Common Stock or Convertible Securities issued pursuant to any equipment loan or leasing arrangement, real property leasing arrangement or debt financing from a bank or similar financial institution approved by the Board, including the majority of the Series Preferred Representatives; and

(F) any Common Stock or Convertible Securities issued in connection with strategic transactions involving the Company and other entities the principal purpose of which is other than for the raising of capital through the sale of equity securities, including (i) joint ventures, manufacturing, marketing or distribution arrangements or (ii) technology transfer or development arrangements; *provided* that the issuance of shares therein has been approved by the Company's Board, including the majority of the Series Preferred Representatives.

References to Common Stock in the subsections of this clause (v) above shall mean all shares of Common Stock issued by the Company or deemed to be issued pursuant to this Section 5(h). The "***Effective Price***" of Additional Shares of Common Stock shall mean the quotient determined by dividing the total number of Additional Shares of Common Stock issued or sold, or deemed to have been issued or sold by the Company under this Section 5(h), into the Aggregate Consideration received, or deemed to have been received by the Company for such issue under this Section 5(h), for such Additional Shares of Common Stock. In the event that the number of shares of Additional Shares of Common Stock or the Effective Price cannot be ascertained at the time of issuance, such Additional Shares of Common Stock shall be deemed issued immediately upon the occurrence of the first event that makes such number of shares or the Effective Price, as applicable, ascertainable.

(vi) In the event that the Company issues or sells, or is deemed to have issued or sold, Additional Shares of Common Stock in a Qualifying Dilutive Issuance (the "***First Dilutive Issuance***"), then in the event that the Company issues or sells, or is deemed to have issued or sold, Additional Shares of Common Stock in a Qualifying Dilutive Issuance other than the First Dilutive Issuance as a part of the same transaction or series of related transactions as the First Dilutive Issuance (a "***Subsequent Dilutive Issuance***"), then and in each such case upon a Subsequent Dilutive Issuance each Series Preferred Conversion Price shall be reduced to the applicable Series Preferred Conversion Price that would have been in effect had the First Dilutive Issuance and each Subsequent Dilutive Issuance all occurred on the closing date of the First Dilutive Issuance.

(i) Certificate of Adjustment. In each case of an adjustment or readjustment of any Series Preferred Conversion Price for the number of shares of Common Stock or other securities issuable upon conversion of any series of Series Preferred, if such Series Preferred is then convertible pursuant to this Section 5, the Company, at its expense, shall compute such adjustment or readjustment in accordance with the provisions hereof and shall,

upon request, prepare a certificate showing such adjustment or readjustment, and shall mail such certificate, by first class mail, postage prepaid, to each registered holder of such series of Series Preferred so requesting at the holder's address as shown in the Company's books. The certificate shall set forth such adjustment or readjustment, showing in detail the facts upon which such adjustment or readjustment is based, including a statement of (i) the consideration received or deemed to be received by the Company for any Additional Shares of Common Stock issued or sold or deemed to have been issued or sold, (ii) the applicable Series Preferred Conversion Price at the time in effect, (iii) the number of Additional Shares of Common Stock and (iv) the type and amount, if any, of other property that at the time would be received upon conversion of such series of Series Preferred. Failure to request or provide such notice shall have no effect on any such adjustment.

(j) Notices of Record Date. Upon (i) any taking by the Company of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend or other distribution or (ii) any Acquisition (as defined in Section 4) or other capital reorganization of the Company, any reclassification or recapitalization of the capital stock of the Company, any merger or consolidation of the Company with or into any other corporation, or any Asset Transfer (as defined in Section 4), or any voluntary or involuntary dissolution, liquidation or winding up of the Company, the Company shall mail to each holder of Series Preferred at least ten (10) days prior to (x) the record date, if any, specified therein; or (y) if no record date is specified, the date upon which such action is to take effect (or, in either case, such shorter period approved by the Requisite Holders) a notice specifying (A) the date on which any such record is to be taken for the purpose of such dividend or distribution and a description of such dividend or distribution, (B) the date on which any such Acquisition, reorganization, reclassification, transfer, consolidation, merger, Asset Transfer, dissolution, liquidation or winding up is expected to become effective and (C) the date, if any, that is to be fixed as to when the holders of record of Common Stock (or other securities) shall be entitled to exchange their shares of Common Stock (or other securities) for securities or other property deliverable upon such Acquisition, reorganization, reclassification, transfer, consolidation, merger, Asset Transfer, dissolution, liquidation or winding up.

(k) Automatic Conversion.

(i) Each share of Series Preferred shall automatically be converted into shares of Common Stock, based on the then-effective Series Preferred Conversion Price, (A) at any time upon the affirmative election of the Requisite Holders or (B) immediately upon the closing of an underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Company in which the gross cash proceeds to the Company (before underwriting discounts, commissions and fees) are at least $30,000,000 (a "***Qualified IPO***"). Upon such automatic conversion, any declared and unpaid dividends shall be paid in accordance with the provisions of Section 5(d).

(ii) Upon the occurrence of either of the events specified in Section 5(k)(i) above, the outstanding shares of Series Preferred shall be converted automatically without any further action by the holders of such shares and whether or not the certificates representing such shares are surrendered to the Company or its transfer agent; *provided, however*, that the Company shall not be obligated to issue certificates evidencing the shares of Common Stock issuable upon such conversion unless the certificates evidencing such shares of Series Preferred are either delivered to the Company or its transfer agent as provided below, or the holder notifies the Company or its transfer agent that such certificates have been lost, stolen or destroyed and executes an agreement reasonably satisfactory to the Company to indemnify the Company from any loss incurred by it in connection with such certificates. Upon the occurrence of such automatic conversion of the Series Preferred, the holders of Series Preferred shall surrender the certificates representing such shares at the office of the Company or any transfer agent for the Series Preferred. Thereupon, there shall be issued and delivered to such holder promptly at such office and in its name as shown on such surrendered certificate or certificates, a certificate or certificates for the number of shares of Common Stock into which the shares of Series Preferred surrendered were convertible on the date on which such automatic conversion occurred, and any declared and unpaid dividends shall be paid in accordance with the provisions of Section 5(d).

(l) Special Mandatory Conversion.

(i) Definitions. For purposes of this Section 5(l):

(A) "***Non-Participating Holder***" means a holder of Series D Preferred that does not purchase all of such holder's Second Tranche Pro Rata Share (as defined below) prior to the Second Tranche Special Mandatory Conversion Time (as defined below).

(B) "***Second Tranche Pro Rata Share***" means that number of shares of the Company's Series D Preferred Stock set forth opposite the name of each holder of shares of Series D Preferred on Exhibit A to the Series D Purchase Agreement under the heading "Second Tranche Shares."

(C) "***Second Tranche Special Mandatory Conversion Time***" means 5:00 p.m., Pacific time, on the date of the Subsequent Closing for the Second Tranche Shares pursuant to the Series D Preferred Stock Purchase Agreement dated on or around October 3, 2014, between the Company and the purchasers whose names are set forth on the schedule of purchasers attached thereto (the "***Series D Purchase Agreement***").

(D) "***Special Mandatory Conversion***" means an automatic conversion of shares of Series D Preferred into shares of Common Stock pursuant to Section 5(l)(ii).

(ii) Conversion Dates. On the terms set forth in this Section 5(l), upon the Second Tranche Special Mandatory Conversion Time, each share of Series D Preferred held by a Non-Participating Holder on such date shall automatically convert into Common Stock based on the then-effective Series D Preferred Conversion Price.

(iii) Mechanics of Special Mandatory Conversion.

(A) Upon any Special Mandatory Conversion, each Non-Participating Holder's shares of Series D Preferred shall be converted at the Second Tranche Special Mandatory Conversion Time into Common Stock, at the Series D Preferred Conversion Rate then in effect, automatically and without the need for any further action by such Non-Participating Holder and regardless of whether the certificates representing such shares are surrendered to the Company or its transfer agent; *provided*, *however*, that the Company shall not be obligated to issue certificates evidencing the shares of Common Stock issuable upon such Special Mandatory Conversion unless and until the certificates evidencing the shares of Series D Preferred that have been converted pursuant to such Special Mandatory Conversion are either delivered to the Company or its transfer agent as provided below, or the holder notifies the Company or its transfer agent that such certificates have been lost, stolen or destroyed and executes an agreement satisfactory to the Company to indemnify the Company from any loss incurred by it in connection with such certificates.

(B) Each Non-Participating Holder shall promptly deliver to the Company during regular business hours at the office of the Company or its transfer agent, or at such other place as may be designated by the Company, the certificate or certificates for the shares of Series D Preferred so converted, duly endorsed or assigned in blank to the Company or the holder shall notify the Company or its transfer agent that such certificate or certificates have been lost, stolen or destroyed and execute an agreement satisfactory to the Company to indemnify the Company from any loss incurred in connection with such certificate or certificates. As promptly as practicable thereafter, the Company shall:

(1) issue and deliver to such Non-Participating Holder a certificate or certificates for the number of full shares of Common Stock to be issued upon such Special Mandatory Conversion and such holder shall be deemed to have become a holder of record of such shares of Common Stock as of the Special Mandatory Conversion;

(2) pay to such Non-Participating Holder in cash or, to the extent sufficient funds are not then legally available therefor, in Common Stock, any declared and unpaid dividends on the shares of Series D Preferred being converted pursuant to the Special Mandatory Conversion.

(iv) Waiver of Application. The application of any of the provisions of this Section 5(l) to any particular Non-Participating Holder or as of a particular conversion time may be waived, either prospectively or retroactively, with the approval of the Board, including a majority of the Series Preferred Representatives, and the written consent of the Requisite Holders.

(m) Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of Series Preferred. All shares of Common Stock (including fractions thereof) issuable upon conversion of more than one share of Series Preferred by a holder thereof shall be aggregated for purposes of determining whether the conversion would result in the issuance of any fractional share. If, after the aforementioned aggregation, the conversion would result in the issuance of any fractional share, the Company shall, in lieu of issuing any fractional share, pay cash equal to the product of such fraction multiplied by the fair market value of one share of Common Stock (as determined by the Board) on the date of conversion.

(n) Reservation of Stock Issuable Upon Conversion. The Company shall at all times reserve and keep available out of its authorized but unissued shares of Common Stock, solely for the purpose of effecting the conversion of the shares of the Series Preferred, such number of its shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of the Series Preferred. If at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Series Preferred, the Company will take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purpose.

(o) Notices. Any notice required by the provisions of this Section 5 shall be in writing and shall be deemed effectively given: (i) upon personal delivery to the party to be notified, (ii) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient; if not, then on the next business day, (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid or (iv) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with verification of receipt. All notices shall be addressed to each holder of record at the address of such holder appearing on the books of the Company.

(p) Payment of Taxes. The Company will pay all taxes (other than taxes based upon income) and other governmental charges that may be imposed with respect to the issue or delivery of shares of Common Stock upon conversion of shares of Series Preferred, excluding any tax or other charge imposed in connection with any transfer involved in the issue and delivery of shares of Common Stock in a name other than that in which the shares of Series Preferred so converted were registered.

6. NO REDEMPTION RIGHTS.

Neither the Company not the holders of Series Preferred shall have the unilateral right to call or redeem or cause to have called or redeemed any shares of the Series Preferred.

7. NO REISSUANCE OF SERIES PREFERRED.

No share or shares of Series Preferred acquired by the Company by reason of redemption, purchase, conversion or otherwise shall be reissued.

V.

A. The liability of the directors of the Company for monetary damages shall be eliminated to the fullest extent under applicable law.

B. To the fullest extent permitted by applicable law, the Company is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Company (and any other persons to which applicable law permits the Company to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise in excess of the indemnification and advancement otherwise permitted by such applicable law. If applicable law is amended after approval by the stockholders of this Article V to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director to the Company shall be eliminated or limited to the fullest extent permitted by applicable law as so amended.

C. Any repeal or modification of this Article V shall only be prospective and shall not affect the rights under this Article V in effect at the time of the alleged occurrence of any action or omission to act giving rise to liability.

D. In the event that a member of the Board of Directors of the Company who is also a partner or employee of an entity that is a holder of Preferred Stock and that is in the business of investing and reinvesting in other entities, or an employee of an entity that manages such an entity (each, a "***Fund***") acquires knowledge of a potential transaction or other matter in such individual's capacity as a partner or employee of the Fund or the manager or general partner of the Fund (and other than directly in connection with such individual's service as a member of the Board of Directors of the Company) and that may be an opportunity of interest for both the Company and such Fund (a "***Corporate Opportunity***"), then the Company (i) renounces any expectancy that such director or Fund offer an opportunity to participate in such Corporate Opportunity to the Company and (ii) to the fullest extent permitted by law, waives any claim that such opportunity constituted a Corporate Opportunity that should have been presented by such director or Fund to the Company or any of its affiliates; provided, however, that such director acts in good faith.

VI.

For the management of the business and for the conduct of the affairs of the Company, and in further definition, limitation and regulation of the powers of the Company, of its directors and of its stockholders or any class thereof, as the case may be, it is further *provided* that:

A. The management of the business and the conduct of the affairs of the Company shall be vested in its Board. The number of directors which shall constitute the whole Board shall be fixed by the Board in the manner provided in the Bylaws, subject to any restrictions which may be set forth in this Restated Certificate.

B. The Board of Directors is expressly empowered to adopt, amend or repeal the Bylaws of the Company. The stockholders shall also have the power to adopt, amend or repeal the Bylaws of the Company; provided however, that, in addition to any vote of the holders of any class or series of stock of the Company required by law or by this Amended and Restated Certificate of Incorporation, the affirmative vote of the holders of at least a majority of the voting power of all of the then-outstanding shares of the capital stock of the Company entitled to vote generally in the election of directors, voting together as a single class, shall be required to adopt, amend or repeal any provision of the Bylaws of the Company.

C. The directors of the Company need not be elected by written ballot unless the Bylaws so provide.

* * * *

FOUR: This Amended and Restated Certificate of Incorporation has been duly approved by the Board of Directors of the Company.

FIVE: This Amended and Restated Certificate of Incorporation was approved by the holders of the requisite number of shares of said corporation in accordance with Section 228 of the DGCL. This Amended and Restated Certificate of Incorporation has been duly adopted in accordance with the provisions of Sections 242 and 245 of the DGCL by the stockholders of the Company.

IN WITNESS WHEREOF, **NGM BIOPHARMACEUTICALS, INC.** has caused this Amended and Restated Certificate of Incorporation to be signed by its Chief Executive Officer on March 19, 2015.

NGM BIOPHARMACEUTICALS, INC.

/s/ William J. Rieflin
William J. Rieflin, Chief Executive Officer

AMENDED AND RESTATED BYLAWS

OF

NGM BIOPHARMACEUTICALS, INC.
(A DELAWARE CORPORATION)

AMENDED AND RESTATED BYLAWS

OF

NGM BIOPHARMACEUTICALS, INC.
(A DELAWARE CORPORATION)

ARTICLE I

OFFICES

Section 1. Registered Office. The address of the registered office of the Corporation in the State of Delaware is 615 South DuPont Highway, City of Dover, County of Kent.

Section 2. Other Offices. The corporation shall also have and maintain an office or principal place of business at such place as may be fixed by the Board of Directors, and may also have offices at such other places, both within and without the State of Delaware, as the Board of Directors may from time to time determine or the business of the corporation may require.

ARTICLE II

CORPORATE SEAL

Section 3. Corporate Seal. The Board of Directors may adopt a corporate seal. The corporate seal shall consist of a die bearing the name of the corporation and the inscription, "Corporate Seal-Delaware." Said seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

ARTICLE III

STOCKHOLDERS' MEETINGS

Section 4. Place of Meetings. Meetings of the stockholders of the corporation may be held at such place, either within or without the State of Delaware, as may be determined from time to time by the Board of Directors. The Board of Directors may, in its sole discretion, determine that the meeting shall not be held at any place, but may instead be held solely by means of remote communication as provided under the Delaware General Corporation Law ("DGCL").

Section 5. Annual Meeting.

(a) The annual meeting of the stockholders of the corporation, for the purpose of election of directors and for such other business as may lawfully come before it, shall be held on such date and at such time as may be designated from time to time by the Board of Directors. Nominations of persons for election to the Board of Directors of the corporation and the proposal of business to be considered by the stockholders may be made at an annual meeting of

stockholders: (i) pursuant to the corporation's notice of meeting of stockholders; (ii) by or at the direction of the Board of Directors; or (iii) by any stockholder of the corporation who was a stockholder of record at the time of giving of notice provided for in the following paragraph, who is entitled to vote at the meeting and who complied with the notice procedures set forth in Section 5.

(b) At an annual meeting of the stockholders, only such business shall be conducted as shall have been properly brought before the meeting. For nominations or other business to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a) of these Bylaws, (i) the stockholder must have given timely notice thereof in writing to the Secretary of the corporation, (ii) such other business must be a proper matter for stockholder action under the DGCL, (iii) if the stockholder, or the beneficial owner on whose behalf any such proposal or nomination is made, has provided the corporation with a Solicitation Notice (as defined in this Section 5(b)), such stockholder or beneficial owner must, in the case of a proposal, have delivered a proxy statement and form of proxy to holders of at least the percentage of the corporation's voting shares required under applicable law to carry any such proposal, or, in the case of a nomination or nominations, have delivered a proxy statement and form of proxy to holders of a percentage of the corporation's voting shares reasonably believed by such stockholder or beneficial owner to be sufficient to elect the nominee or nominees proposed to be nominated by such stockholder, and must, in either case, have included in such materials the Solicitation Notice, and (iv) if no Solicitation Notice relating thereto has been timely provided pursuant to this section, the stockholder or beneficial owner proposing such business or nomination must not have solicited a number of proxies sufficient to have required the delivery of such a Solicitation Notice under this Section 5. To be timely, a stockholder's notice shall be delivered to the Secretary at the principal executive offices of the Corporation not later than the close of business on the ninetieth (90th) day nor earlier than the close of business on the one hundred twentieth (120th) day prior to the first anniversary of the preceding year's annual meeting; provided, however, that in the event that the date of the annual meeting is advanced more than thirty (30) days prior to or delayed by more than thirty (30) days after the anniversary of the preceding year's annual meeting, notice by the stockholder to be timely must be so delivered not earlier than the close of business on the one hundred twentieth (120th) day prior to such annual meeting and not later than the close of business on the later of the ninetieth (90th) day prior to such annual meeting or the tenth (10th) day following the day on which public announcement of the date of such meeting is first made. In no event shall the public announcement of an adjournment of an annual meeting commence a new time period for the giving of a stockholder's notice as described above. Such stockholder's notice shall set forth: (A) as to each person whom the stockholder proposed to nominate for election or reelection as a director all information relating to such person that is required to be disclosed in solicitations of proxies for election of directors in an election contest, or is otherwise required, in each case pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended (the "1934 Act") and Rule 14a-4(d) thereunder (including such person's written consent to being named in the proxy statement as a nominee and to serving as a director if elected); (B) as to any other business that the stockholder proposes to bring before the meeting, a brief description of the business desired to be brought before the meeting, the reasons for conducting such business at the meeting and any material interest in such business of such stockholder and the beneficial owner, if any, on whose behalf the proposal is made; and (C) as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination or proposal is made (i)

the name and address of such stockholder, as they appear on the corporation's books, and of such beneficial owner, (ii) the class and number of shares of the corporation which are owned beneficially and of record by such stockholder and such beneficial owner, and (iii) whether either such stockholder or beneficial owner intends to deliver a proxy statement and form of proxy to holders of, in the case of the proposal, at least the percentage of the corporation's voting shares required under applicable law to carry the proposal or, in the case of a nomination or nominations, a sufficient number of holders of the corporation's voting shares to elect such nominee or nominees (an affirmative statement of such intent, a "Solicitation Notice").

(c) Notwithstanding anything in the second sentence of Section 5(b) of these Bylaws to the contrary, in the event that the number of directors to be elected to the Board of Directors of the Corporation is increased and there is no public announcement naming all of the nominees for director or specifying the size of the increased Board of Directors made by the corporation at least one hundred (100) days prior to the first anniversary of the preceding year's annual meeting, a stockholder's notice required by this Section 5 shall also be considered timely, but only with respect to nominees for any new positions created by such increase, if it shall be delivered to the Secretary at the principal executive offices of the corporation not later than the close of business on the tenth (10^{th}) day following the day on which such public announcement is first made by the corporation.

(d) Only such persons who are nominated in accordance with the procedures set forth in this Section 5 shall be eligible to serve as directors and only such business shall be conducted at a meeting of stockholders as shall have been brought before the meeting in accordance with the procedures set forth in this Section 5. Except as otherwise provided by law, the Chairman of the meeting shall have the power and duty to determine whether a nomination or any business proposed to be brought before the meeting was made, or proposed, as the case may be, in accordance with the procedures set forth in these Bylaws and, if any proposed nomination or business is not in compliance with these Bylaws, to declare that such defective proposal or nomination shall not be presented for stockholder action at the meeting and shall be disregarded.

(e) Notwithstanding the foregoing provisions of this Section 5, in order to include information with respect to a stockholder proposal in the proxy statement and form of proxy for a stockholders' meeting, stockholders must provide notice as required by the regulations promulgated under the 1934 Act. Nothing in these Bylaws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the corporation proxy statement pursuant to Rule 14a-8 under the 1934 Act.

(f) For purposes of this Section 5, "public announcement" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or comparable national news service or in a document publicly filed by the corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the 1934 Act.

Section 6. Special Meetings.

(a) Special meetings of the stockholders of the corporation may be called, for any purpose or purposes, by (i) the Chairman of the Board of Directors, (ii) the Chief Executive Officer, or (iii) the Board of Directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exist any vacancies in previously authorized directorships at the time any such resolution is presented to the Board of Directors for adoption) or (iv) by the holders of shares entitled to cast not less than ten percent (10%) of the votes at the meeting, and shall be held at such place, on such date, and at such time as the Board of Directors shall fix. At any time or times that the corporation is subject to Section 2115(b) of the California General Corporation Law ("CGCL"), stockholders holding five percent (5%) or more of the outstanding shares shall have the right to call a special meeting of stockholders as set forth in Section 18(b) herein.

(b) If a special meeting is properly called by any person or persons other than the Board of Directors, the request shall be in writing, specifying the general nature of the business proposed to be transacted, and shall be delivered personally or sent by certified or registered mail, return receipt requested, or by telegraphic or other facsimile transmission to the Chairman of the Board of Directors, the Chief Executive Officer, or the Secretary of the corporation. No business may be transacted at such special meeting otherwise than specified in such notice. The Board of Directors shall determine the time and place of such special meeting, which shall be held not less than thirty-five (35) nor more than one hundred twenty (120) days after the date of the receipt of the request. Upon determination of the time and place of the meeting, the officer receiving the request shall cause notice to be given to the stockholders entitled to vote, in accordance with the provisions of Section 7 of these Bylaws. Nothing contained in this paragraph (b) shall be construed as limiting, fixing, or affecting the time when a meeting of stockholders called by action of the Board of Directors may be held.

Section 7. Notice of Meetings. Except as otherwise provided by law, notice, given in writing or by electronic transmission, of each meeting of stockholders shall be given not less than ten (10) nor more than sixty (60) days before the date of the meeting to each stockholder entitled to vote at such meeting, such notice to specify the place, if any, date and hour, in the case of special meetings, the purpose or purposes of the meeting, and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at any such meeting. If mailed, notice is given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the corporation. Notice of the time, place, if any, and purpose of any meeting of stockholders may be waived in writing, signed by the person entitled to notice thereof or by electronic transmission by such person, either before or after such meeting, and will be waived by any stockholder by his attendance thereat in person, by remote communication, if applicable, or by proxy, except when the stockholder attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of such meeting shall be bound by the proceedings of any such meeting in all respects as if due notice thereof had been given.

Section 8. Quorum. At all meetings of stockholders, except where otherwise provided by statute or by the Certificate of Incorporation, or by these Bylaws, the presence, in person, by remote communication, if applicable, or by proxy duly authorized, of the holders of a majority of the outstanding shares of stock entitled to vote shall constitute a quorum for the transaction of business. In the absence of a quorum, any meeting of stockholders may be adjourned, from time to time, either by the chairman of the meeting or by vote of the holders of a

majority of the shares represented thereat, but no other business shall be transacted at such meeting. The stockholders present at a duly called or convened meeting, at which a quorum is present, may continue to transact business until adjournment, notwithstanding the withdrawal of enough stockholders to leave less than a quorum. Except as otherwise provided by statute, or by the Certificate of Incorporation or these Bylaws, in all matters other than the election of directors, the affirmative vote of a majority of shares present in person, by remote communication, if applicable, or represented by proxy duly authorized at the meeting and entitled to vote generally on the subject matter shall be the act of the stockholders. Except as otherwise provided by statute, the Certificate of Incorporation or these Bylaws, directors shall be elected by a plurality of the votes of the shares present in person, by remote communication, if applicable, or represented by proxy duly authorized at the meeting and entitled to vote generally on the election of directors. Where a separate vote by a class or classes or series is required, except where otherwise provided by the statute or by the Certificate of Incorporation or these Bylaws, a majority of the outstanding shares of such class or classes or series, present in person, by remote communication, if applicable, or represented by proxy duly authorized, shall constitute a quorum entitled to take action with respect to that vote on that matter. Except where otherwise provided by statute or by the Certificate of Incorporation or these Bylaws, the affirmative vote of the majority (plurality, in the case of the election of directors) of shares of such class or classes or series present in person, by remote communication, if applicable, or represented by proxy at the meeting shall be the act of such class or classes or series.

Section 9. Adjournment and Notice of Adjourned Meetings. Any meeting of stockholders, whether annual or special, may be adjourned from time to time either by the chairman of the meeting or by the vote of a majority of the shares present in person, by remote communication, if applicable, or represented by proxy. When a meeting is adjourned to another time or place, if any, notice need not be given of the adjourned meeting if the time and place, if any, thereof are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than thirty (30) days or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

Section 10. Voting Rights. For the purpose of determining those stockholders entitled to vote at any meeting of the stockholders, except as otherwise provided by law, only persons in whose names shares stand on the stock records of the corporation on the record date, as provided in Section 12 of these Bylaws, shall be entitled to vote at any meeting of stockholders. Every person entitled to vote or execute consents shall have the right to do so either in person, by remote communication, if applicable, or by an agent or agents authorized by a proxy granted in accordance with Delaware law. An agent so appointed need not be a stockholder. No proxy shall be voted after three (3) years from its date of creation unless the proxy provides for a longer period.

Section 11. Joint Owners of Stock. If shares or other securities having voting power stand of record in the names of two (2) or more persons, whether fiduciaries, members of a partnership, joint tenants, tenants in common, tenants by the entirety, or otherwise, or if two (2) or more persons have the same fiduciary relationship respecting the same shares, unless the Secretary is given written notice to the contrary and is furnished with a copy of the instrument or

order appointing them or creating the relationship wherein it is so provided, their acts with respect to voting shall have the following effect: (a) if only one (1) votes, his act binds all; (b) if more than one (1) votes, the act of the majority so voting binds all; (c) if more than one (1) votes, but the vote is evenly split on any particular matter, each faction may vote the securities in question proportionally, or may apply to the Delaware Court of Chancery for relief as provided in the DGCL, Section 217(b). If the instrument filed with the Secretary shows that any such tenancy is held in unequal interests, a majority or even-split for the purpose of subsection (c) shall be a majority or even-split in interest.

Section 12. List of Stockholders. The Secretary shall prepare and make, at least ten (10) days before every meeting of stockholders, a complete list of the stockholders entitled to vote at said meeting, arranged in alphabetical order, showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or during ordinary business hours, at the principal place of business of the corporation. In the event that the corporation determines to make the list available on an electronic network, the corporation may take reasonable steps to ensure that such information is available only to stockholders of the corporation. The list shall be open to examination of any stockholder during the time of the meeting as provided by law.

Section 13. Action Without Meeting.

(a) Unless otherwise provided in the Certificate of Incorporation, any action required by statute to be taken at any annual or special meeting of the stockholders, or any action which may be taken at any annual or special meeting of the stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent in writing, or by electronic transmission setting forth the action so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted.

(b) Every written consent or electronic transmission shall bear the date of signature of each stockholder who signs the consent, and no written consent or electronic transmission shall be effective to take the corporate action referred to therein unless, within sixty (60) days of the earliest dated consent delivered to the corporation in the manner herein required, written consents or electronic transmissions signed by a sufficient number of stockholders to take action are delivered to the corporation by delivery to its registered office in the State of Delaware, its principal place of business or an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to a corporation’s registered office shall be by hand or by certified or registered mail, return receipt requested.

(c) Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing or by electronic transmission and who, if the action had been taken at a meeting, would have been entitled to notice of the meeting if the record date for such meeting had been the date that written consents signed by a sufficient number of stockholders to take action were

delivered to the corporation as provided in Section 228(c) of the DGCL. If the action which is consented to is such as would have required the filing of a certificate under any section of the DGCL if such action had been voted on by stockholders at a meeting thereof, then the certificate filed under such section shall state, in lieu of any statement required by such section concerning any vote of stockholders, that written consent has been given in accordance with Section 228 of the DGCL.

(d) A telegram, cablegram or other electronic transmission consenting to an action to be taken and transmitted by a stockholder or proxyholder, shall be deemed to be written, signed and dated for the purposes of this section, provided that any such telegram, cablegram or other electronic transmission sets forth or is delivered with information from which the corporation can determine (i) that the telegram, cablegram or other electronic transmission was transmitted by the stockholder or proxyholder or by a person or persons authorized to act for the stockholder and (ii) the date on which such stockholder or proxyholder or authorized person or persons transmitted such telegram, cablegram or electronic transmission. The date on which such telegram, cablegram or electronic transmission is transmitted shall be deemed to be the date on which such consent was signed. No consent given by telegram, cablegram or other electronic transmission shall be deemed to have been delivered until such consent is reproduced in paper form and until such paper form shall be delivered to the corporation by delivery to its registered office in the state of Delaware, its principal place of business or an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to a corporation's registered office shall be made by hand or by certified or registered mail, return receipt requested. Notwithstanding the foregoing limitations on delivery, consents given by telegram, cablegram or other electronic transmission may be otherwise delivered to the principal place of business of the corporation or to an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded if, to the extent and in the manner provided by resolution of the board of directors of the corporation. Any copy, facsimile or other reliable reproduction of a consent in writing may be substituted or used in lieu of the original writing for any and all purposes for which the original writing could be used, provided that such copy, facsimile or other reproduction shall be a complete reproduction of the entire original writing.

Section 14. Organization.

(a) At every meeting of stockholders, the Chairman of the Board of Directors, or, if a Chairman has not been appointed or is absent, the President, or, if the President is absent, a chairman of the meeting chosen by a majority in interest of the stockholders entitled to vote, present in person or by proxy, shall act as chairman. The Secretary, or, in his absence, an Assistant Secretary directed to do so by the President, shall act as secretary of the meeting.

(b) The Board of Directors of the corporation shall be entitled to make such rules or regulations for the conduct of meetings of stockholders as it shall deem necessary, appropriate or convenient. Subject to such rules and regulations of the Board of Directors, if any, the chairman of the meeting shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are necessary, appropriate or convenient for the proper conduct of the meeting, including, without limitation, establishing an agenda or order of business for the meeting, rules and procedures for

maintaining order at the meeting and the safety of those present, limitations on participation in such meeting to stockholders of record of the corporation and their duly authorized and constituted proxies and such other persons as the chairman shall permit, restrictions on entry to the meeting after the time fixed for the commencement thereof, limitations on the time allotted to questions or comments by participants and regulation of the opening and closing of the polls for balloting on matters which are to be voted on by ballot. The date and time of the opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting. Unless and to the extent determined by the Board of Directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with rules of parliamentary procedure.

ARTICLE IV

DIRECTORS

Section 15. Number and Term of Office.

The authorized number of directors of the corporation shall be fixed by the Board of Directors from time to time. Directors need not be stockholders unless so required by the Certificate of Incorporation. If for any cause, the directors shall not have been elected at an annual meeting, they may be elected as soon thereafter as convenient.

Section 16. Powers. The powers of the corporation shall be exercised, its business conducted and its property controlled by the Board of Directors, except as may be otherwise provided by statute or by the Certificate of Incorporation.

Section 17. Term of Directors.

(a) Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, directors shall be elected at each annual meeting of stockholders for a term of one year. Each director shall serve until his successor is duly elected and qualified or until his death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

(b) No person entitled to vote at an election for directors may cumulate votes to which such person is entitled, unless, at the time of such election, the corporation is subject to Section 2115(b) of the CGCL. During such time or times that the corporation is subject to Section 2115(b) of the CGCL, every stockholder entitled to vote at an election for directors may cumulate such stockholder’s votes and give one candidate a number of votes equal to the number of directors to be elected multiplied by the number of votes to which such stockholder’s shares are otherwise entitled, or distribute the stockholder’s votes on the same principle among as many candidates as such stockholder thinks fit. No stockholder, however, shall be entitled to so cumulate such stockholder’s votes unless (i) the names of such candidate or candidates have been placed in nomination prior to the voting and (ii) the stockholder has given notice at the meeting, prior to the voting, of such stockholder’s intention to cumulate such stockholder’s votes. If any stockholder has given proper notice to cumulate votes, all stockholders may cumulate their votes for any candidates who have been properly placed in nomination. Under cumulative voting, the candidates receiving the highest number of votes, up to the number of directors to be elected, are elected.

Section 18. Vacancies.

(a) Unless otherwise provided in the Certificate of Incorporation, and subject to the rights of the holders of any series of Preferred Stock, any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum of the Board of Directors, or by a sole remaining director, *provided, however*, that whenever the holders of any class or classes of stock or series thereof are entitled to elect one or more directors by the provisions of the Certificate of Incorporation, vacancies and newly created directorships of such class or classes or series shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled by a majority of the directors elected by such class or classes or series thereof then in office, or by a sole remaining director so elected. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director's successor shall have been elected and qualified. A vacancy in the Board of Directors shall be deemed to exist under this Bylaw in the case of the death, removal or resignation of any director.

(b) At any time or times that the corporation is subject to §2115(b) of the CGCL, if, after the filling of any vacancy, the directors then in office who have been elected by stockholders shall constitute less than a majority of the directors then in office, then

(i) any holder or holders of an aggregate of five percent (5%) or more of the total number of shares at the time outstanding having the right to vote for those directors may call a special meeting of stockholders; or

(ii) the Superior Court of the proper county shall, upon application of such stockholder or stockholders, summarily order a special meeting of the stockholders, to be held to elect the entire board, all in accordance with Section 305(c) of the CGCL, the term of office of any director shall terminate upon that election of a successor.

Section 19. Resignation. Any director may resign at any time by delivering his or her notice in writing or by electronic transmission to the Secretary, such resignation to specify whether it will be effective at a particular time, upon receipt by the Secretary or at the pleasure of the Board of Directors. If no such specification is made, it shall be deemed effective at the pleasure of the Board of Directors. When one or more directors shall resign from the Board of Directors, effective at a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each Director so chosen shall hold office for the unexpired portion of the term of the Director whose place shall be vacated and until his successor shall have been duly elected and qualified.

Section 20. Removal.

(a) Subject to any limitations imposed by applicable law (and assuming the corporation is not subject to Section 2115 of the CGCL), the Board of Directors or any director may be removed from office at any time (i) with cause by the affirmative vote of the holders of a majority of the voting power of all then-outstanding shares of capital stock of the corporation entitled to vote generally at an election of directors or (ii) without cause by the affirmative vote of the holders of a majority of the voting power of all then-outstanding shares of capital stock of the corporation, entitled to vote generally at an election of directors.

(b) During such time or times that the corporation is subject to Section 2115(b) of the CGCL, the Board of Directors or any individual director may be removed from office at any time without cause by the affirmative vote of the holders of at least a majority of the outstanding shares entitled to vote on such removal; provided, however, that unless the entire Board is removed, no individual director may be removed when the votes cast against such director's removal, or not consenting in writing to such removal, would be sufficient to elect that director if voted cumulatively at an election which the same total number of votes were cast (or, if such action is taken by written consent, all shares entitled to vote were voted) and the entire number of directors authorized at the time of such director's most recent election were then being elected.

Section 21. Meetings

(a) Regular Meetings. Unless otherwise restricted by the Certificate of Incorporation, regular meetings of the Board of Directors may be held at any time or date and at any place within or without the State of Delaware which has been designated by the Board of Directors and publicized among all directors, either orally or in writing, including a voice-messaging system or other system designated to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means. No further notice shall be required for a regular meeting of the Board of Directors.

(b) Special Meetings. Unless otherwise restricted by the Certificate of Incorporation, special meetings of the Board of Directors may be held at any time and place within or without the State of Delaware whenever called by the Chairman of the Board, the President or any two of the directors.

(c) Meetings by Electronic Communications Equipment. Any member of the Board of Directors, or of any committee thereof, may participate in a meeting by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation in a meeting by such means shall constitute presence in person at such meeting.

(d) Notice of Special Meetings. Notice of the time and place of all special meetings of the Board of Directors shall be orally or in writing, by telephone, including a voice messaging system or other system or technology designed to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means, during normal business hours, at least twenty-four (24) hours before the date and time of the meeting. If notice is sent by US mail, it shall be sent by first class mail, postage prepaid at least three (3) days before the date of the meeting. Notice of any meeting may be waived in writing or by electronic transmission at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends the meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened.

(e) Waiver of Notice. The transaction of all business at any meeting of the Board of Directors, or any committee thereof, however called or noticed, or wherever held, shall be as valid as though had at a meeting duly held after regular call and notice, if a quorum be present and if, either before or after the meeting, each of the directors not present who did not receive notice shall sign a written waiver of notice or shall waive notice by electronic transmission. All such waivers shall be filed with the corporate records or made a part of the minutes of the meeting.

Section 22. Quorum and Voting.

(a) Unless the Certificate of Incorporation requires a greater number, a quorum of the Board of Directors shall consist of a majority of the exact number of directors fixed from time to time by the Board of Directors in accordance with the Certificate of Incorporation; *provided, however,* at any meeting, whether a quorum be present or otherwise, a majority of the directors present may adjourn from time to time until the time fixed for the next regular meeting of the Board of Directors, without notice other than by announcement at the meeting.

(b) At each meeting of the Board of Directors at which a quorum is present, all questions and business shall be determined by the affirmative vote of a majority of the directors present, unless a different vote be required by law, the Certificate of Incorporation or these Bylaws.

Section 23. Action Without Meeting. Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent thereto in writing or by electronic transmission, and such writing or writings or transmission or transmissions are filed with the minutes of proceedings of the Board of Directors or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

Section 24. Fees and Compensation. Directors shall be entitled to such compensation for their services as may be approved by the Board of Directors, including, if so approved, by resolution of the Board of Directors, a fixed sum and expenses of attendance, if any, for attendance at each regular or special meeting of the Board of Directors and at any meeting of a committee of the Board of Directors. Nothing herein contained shall be construed to preclude any director from serving the corporation in any other capacity as an officer, agent, employee, or otherwise and receiving compensation therefor.

Section 25. Committees.

(a) Executive Committee. The Board of Directors may appoint an Executive Committee to consist of one (1) or more members of the Board of Directors. The Executive Committee, to the extent permitted by law and provided in the resolution of the Board of Directors shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation, and may authorize the seal of the corporation to be affixed to all papers which may require it; but no such committee shall have the power or authority in reference to (i) approving or adopting, or recommending to the stockholders, any action or matter expressly required by the DGCL to be submitted to stockholders for approval, or (ii) adopting, amending or repealing any bylaw of the corporation.

(b) Other Committees. The Board of Directors may, from time to time, appoint such other committees as may be permitted by law. Such other committees appointed by the Board of Directors shall consist of one (1) or more members of the Board of Directors and shall have such powers and perform such duties as may be prescribed by the resolution or resolutions creating such committees, but in no event shall any such committee have the powers denied to the Executive Committee in these Bylaws.

(c) Term. The Board of Directors, subject to any requirements of any outstanding series of Preferred Stock and the provisions of subsections (a) or (b) of this Bylaw may at any time increase or decrease the number of members of a committee or terminate the existence of a committee. The membership of a committee member shall terminate on the date of his death or voluntary resignation from the committee or from the Board of Directors. The Board of Directors may at any time for any reason remove any individual committee member and the Board of Directors may fill any committee vacancy created by death, resignation, removal or increase in the number of members of the committee. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee, and, in addition, in the absence or disqualification of any member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not he or they constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member.

(d) Meetings. Unless the Board of Directors shall otherwise provide, regular meetings of the Executive Committee or any other committee appointed pursuant to this Section 25 shall be held at such times and places as are determined by the Board of Directors, or by any such committee, and when notice thereof has been given to each member of such committee, no further notice of such regular meetings need be given thereafter. Special meetings of any such committee may be held at any place which has been determined from time to time by such committee, and may be called by any director who is a member of such committee, upon notice to the members of such committee of the time and place of such special meeting given in the manner provided for the giving of notice to members of the Board of Directors of the time and place of special meetings of the Board of Directors. Notice of any special meeting of any

committee may be waived in writing at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends such special meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Unless otherwise provided by the Board of Directors in the resolutions authorizing the creation of the committee, a majority of the authorized number of members of any such committee shall constitute a quorum for the transaction of business, and the act of a majority of those present at any meeting at which a quorum is present shall be the act of such committee.

Section 26. Organization. At every meeting of the directors, the Chairman of the Board of Directors, or, if a Chairman has not been appointed or is absent, the President, or if the President is absent, the most senior Vice President, (if a director) or, in the absence of any such person, a chairman of the meeting chosen by a majority of the directors present, shall preside over the meeting. The Secretary, or in his absence, any Assistant Secretary directed to do so by the President, shall act as secretary of the meeting.

ARTICLE V

OFFICERS

Section 27. Officers Designated. The officers of the corporation shall include, if and when designated by the Board of Directors, the Chief Executive Officer, the President, one or more Vice Presidents, the Secretary, the Chief Financial Officer, the Treasurer and the Controller, all of whom shall be elected at the annual organizational meeting of the Board of Directors. The Board of Directors may also appoint one or more Assistant Secretaries, Assistant Treasurers, Assistant Controllers and such other officers and agents with such powers and duties as it shall deem necessary. The Board of Directors may assign such additional titles to one or more of the officers as it shall deem appropriate. Any one person may hold any number of offices of the corporation at any one time unless specifically prohibited therefrom by law. The salaries and other compensation of the officers of the corporation shall be fixed by or in the manner designated by the Board of Directors.

Section 28. Tenure and Duties of Officers.

(a) General. All officers shall hold office at the pleasure of the Board of Directors and until their successors shall have been duly elected and qualified, unless sooner removed. Any officer elected or appointed by the Board of Directors may be removed at any time by the Board of Directors. If the office of any officer becomes vacant for any reason, the vacancy may be filled by the Board of Directors.

(b) Duties of Chairman of the Board of Directors. The Chairman of the Board of Directors, when present, shall preside at all meetings of the stockholders and the Board of Directors. The Chairman of the Board of Directors shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors shall designate from time to time. If there is no President, then the Chairman of the Board of Directors shall also serve as the Chief Executive Officer of the corporation and shall have the powers and duties prescribed in paragraph (c) of this Section 28.

(c) Duties of President. The President shall preside at all meetings of the stockholders and at all meetings of the Board of Directors, unless the Chairman of the Board of Directors has been appointed and is present. Unless some other officer has been elected Chief Executive Officer of the corporation, the President shall be the chief executive officer of the corporation and shall, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the corporation. The President shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors shall designate from time to time.

(d) Duties of Vice Presidents. The Vice Presidents may assume and perform the duties of the President in the absence or disability of the President or whenever the office of President is vacant. The Vice Presidents shall perform other duties commonly incident to their office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

(e) Duties of Secretary. The Secretary shall attend all meetings of the stockholders and of the Board of Directors and shall record all acts and proceedings thereof in the minute book of the corporation. The Secretary shall give notice in conformity with these Bylaws of all meetings of the stockholders and of all meetings of the Board of Directors and any committee thereof requiring notice. The Secretary shall perform all other duties provided for in these Bylaws and other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors shall designate from time to time. The President may direct any Assistant Secretary to assume and perform the duties of the Secretary in the absence or disability of the Secretary, and each Assistant Secretary shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

(f) Duties of Chief Financial Officer. The Chief Financial Officer shall keep or cause to be kept the books of account of the corporation in a thorough and proper manner and shall render statements of the financial affairs of the corporation in such form and as often as required by the Board of Directors or the President. The Chief Financial Officer, subject to the order of the Board of Directors, shall have the custody of all funds and securities of the corporation. The Chief Financial Officer shall perform other duties commonly incident to his office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time. The President may direct the Treasurer or any Assistant Treasurer, or the Controller or any Assistant Controller to assume and perform the duties of the Chief Financial Officer in the absence or disability of the Chief Financial Officer, and each Treasurer and Assistant Treasurer and each Controller and Assistant Controller shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

Section 29. Delegation of Authority. The Board of Directors may from time to time delegate the powers or duties of any officer to any other officer or agent, notwithstanding any provision hereof.

Section 30. Resignations. Any officer may resign at any time by giving notice in writing or by electronic transmission notice to the Board of Directors or to the President or to the Secretary. Any such resignation shall be effective when received by the person or persons to whom such notice is given, unless a later time is specified therein, in which event the resignation shall become effective at such later time. Unless otherwise specified in such notice, the acceptance of any such resignation shall not be necessary to make it effective. Any resignation shall be without prejudice to the rights, if any, of the corporation under any contract with the resigning officer.

Section 31. Removal. Any officer may be removed from office at any time, either with or without cause, by the affirmative vote of a majority of the directors in office at the time, or by the unanimous written consent of the directors in office at the time, or by any committee or superior officers upon whom such power of removal may have been conferred by the Board of Directors.

ARTICLE VI

EXECUTION OF CORPORATE INSTRUMENTS AND VOTING OF SECURITIES OWNED BY THE CORPORATION

Section 32. Execution of Corporate Instruments. The Board of Directors may, in its discretion, determine the method and designate the signatory officer or officers, or other person or persons, to execute on behalf of the corporation any corporate instrument or document, or to sign on behalf of the corporation the corporate name without limitation, or to enter into contracts on behalf of the corporation, except where otherwise provided by law or these Bylaws, and such execution or signature shall be binding upon the corporation.

All checks and drafts drawn on banks or other depositaries on funds to the credit of the corporation or in special accounts of the corporation shall be signed by such person or persons as the Board of Directors shall authorize so to do.

Unless authorized or ratified by the Board of Directors or within the agency power of an officer, no officer, agent or employee shall have any power or authority to bind the corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or for any amount.

Section 33. Voting of Securities Owned by the Corporation. All stock and other securities of other corporations owned or held by the corporation for itself, or for other parties in any capacity, shall be voted, and all proxies with respect thereto shall be executed, by the person authorized so to do by resolution of the Board of Directors, or, in the absence of such authorization, by the Chairman of the Board of Directors, the Chief Executive Officer, the President, or any Vice President.

ARTICLE VII

SHARES OF STOCK

Section 34. Form and Execution of Certificates. The shares of the corporation shall be represented by certificates, or shall be uncertificated. Certificates for the shares of stock, if any, shall be in such form as is consistent with the Certificate of Incorporation and applicable law. Every holder of stock in the corporation represented by certificate shall be entitled to have a certificate signed by or in the name of the corporation by the Chairman of the Board of Directors, or the President or any Vice President and by the Treasurer or Assistant Treasurer or the Secretary or Assistant Secretary, certifying the number of shares owned by him in the corporation. Any or all of the signatures on the certificate may be facsimiles. In case any officer, transfer agent, or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent, or registrar before such certificate is issued, it may be issued with the same effect as if he were such officer, transfer agent, or registrar at the date of issue.

Section 35. Lost Certificates. A new certificate or certificates shall be issued in place of any certificate or certificates theretofore issued by the corporation alleged to have been lost, stolen, or destroyed, upon the making of an affidavit of that fact by the person claiming the certificate of stock to be lost, stolen, or destroyed. The corporation may require, as a condition precedent to the issuance of a new certificate or certificates, the owner of such lost, stolen, or destroyed certificate or certificates, or the owner's legal representative, to agree to indemnify the corporation in such manner as it shall require or to give the corporation a surety bond in such form and amount as it may direct as indemnity against any claim that may be made against the corporation with respect to the certificate alleged to have been lost, stolen, or destroyed.

Section 36. Transfers.

(a) Transfers of record of shares of stock of the corporation shall be made only upon its books by the holders thereof, in person or by attorney duly authorized, and, in the case of stock represented by certificate, upon the surrender of a properly endorsed certificate or certificates for a like number of shares.

(b) The corporation shall have power to enter into and perform any agreement with any number of stockholders of any one or more classes of stock of the corporation to restrict the transfer of shares of stock of the corporation of any one or more classes owned by such stockholders in any manner not prohibited by the DGCL.

Section 37. Fixing Record Dates.

(a) In order that the corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix, in advance, a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall, subject to applicable law, not be more than sixty (60) nor less than ten (10) days before the date of such meeting. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided, however,* that the Board of Directors may fix a new record date for the adjourned meeting.

(b) In order that the corporation may determine the stockholders entitled to consent to corporate action in writing without a meeting, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which date shall not be more than ten (10) days after the date upon which the resolution fixing the record date is adopted by the Board of Directors. Any stockholder of record seeking to have the stockholders authorize or take corporate action by written consent shall, by written notice to the Secretary, request the Board of Directors to fix a record date. The Board of Directors shall promptly, but in all events within ten (10) days after the date on which such a request is received, adopt a resolution fixing the record date. If no record date has been fixed by the Board of Directors within ten (10) days of the date on which such a request is received, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting, when no prior action by the Board of Directors is required by applicable law, shall be the first date on which a signed written consent setting forth the action taken or proposed to be taken is delivered to the corporation by delivery to its registered office in the State of Delaware, its principal place of business or an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to the corporation's registered office shall be by hand or by certified or registered mail, return receipt requested. If no record date has been fixed by the Board of Directors and prior action by the Board of Directors is required by law, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting shall be at the close of business on the day on which the Board of Directors adopts the resolution taking such prior action.

(c) In order that the corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix, in advance, a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than sixty (60) days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

Section 38. Registered Stockholders. The corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends, and to vote as such owner, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

ARTICLE VIII

OTHER SECURITIES OF THE CORPORATION

Section 39. Execution of Other Securities. All bonds, debentures and other corporate securities of the corporation, other than stock certificates (covered in Section 34), may be signed by the Chairman of the Board of Directors, the President or any Vice President, or such other person as may be authorized by the Board of Directors, and the corporate seal impressed thereon or a facsimile of such seal imprinted thereon and attested by the signature of the Secretary or an Assistant Secretary, or the Chief Financial Officer or Treasurer or an Assistant Treasurer; *provided, however,* that where any such bond, debenture or other corporate security shall be authenticated by the manual signature, or where permissible facsimile signature, of a trustee under an indenture pursuant to which such bond, debenture or other corporate security shall be issued, the signatures of the persons signing and attesting the corporate seal on such bond, debenture or other corporate security may be the imprinted facsimile of the signatures of such persons. Interest coupons appertaining to any such bond, debenture or other corporate security, authenticated by a trustee as aforesaid, shall be signed by the Treasurer or an Assistant Treasurer of the corporation or such other person as may be authorized by the Board of Directors, or bear imprinted thereon the facsimile signature of such person. In case any officer who shall have signed or attested any bond, debenture or other corporate security, or whose facsimile signature shall appear thereon or on any such interest coupon, shall have ceased to be such officer before the bond, debenture or other corporate security so signed or attested shall have been delivered, such bond, debenture or other corporate security nevertheless may be adopted by the corporation and issued and delivered as though the person who signed the same or whose facsimile signature shall have been used thereon had not ceased to be such officer of the corporation.

ARTICLE IX

DIVIDENDS

Section 40. Declaration of Dividends. Dividends upon the capital stock of the corporation, subject to the provisions of the Certificate of Incorporation and applicable law, if any, may be declared by the Board of Directors pursuant to law at any regular or special meeting; *provided, however*, that, in addition to any vote of the holders of any class or series of stock of the corporation required by law or by the Certificate of Incorporation, such action by the Board of Directors shall require the affirmative vote of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the voting power of all of the then-outstanding shares of the Series A Preferred Stock and the Series B Preferred Stock (collectively, the “Series Preferred”), voting together as a single class. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the Certificate of Incorporation and applicable law. The provisions of this bylaw may not be amended, waived, or repealed without the affirmative vote of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the voting power of all the then-outstanding shares of the Series Preferred, voting together as a single class.

Section 41. Dividend Reserve. Before payment of any dividend, there may be set aside out of any funds of the corporation available for dividends such sum or sums as the Board of Directors from time to time, in their absolute discretion, think proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the corporation, or for such other purpose as the Board of Directors shall think conducive to the interests of the corporation, and the Board of Directors may modify or abolish any such reserve in the manner in which it was created.

ARTICLE X

FISCAL YEAR

Section 42. Fiscal Year. The fiscal year of the corporation shall be fixed by resolution of the Board of Directors.

ARTICLE XI

INDEMNIFICATION

Section 43. Indemnification of Directors and Executive Officers.

(a) Directors and Executive Officers. The corporation shall indemnify its directors and executive officers (for the purposes of this Article XI, "executive officers" shall have the meaning defined in Rule 3b-7 promulgated under the 1934 Act) to the fullest extent not prohibited by the DGCL or any other applicable law; *provided, however,* that the corporation may modify the extent of such indemnification by individual contracts with its directors and executive officers; and, *provided, further,* that the corporation shall not be required to indemnify any director or executive officer in connection with any proceeding (or part thereof) initiated by such person unless (i) such indemnification is expressly required to be made by law, (ii) the proceeding was authorized by the Board of Directors of the corporation, (iii) such indemnification is provided by the corporation, in its sole discretion, pursuant to the powers vested in the corporation under the Delaware General Corporation Law or any other applicable law or (iv) such indemnification is required to be made under subsection (d).

(b) Other Officers, Employees and Other Agents. The corporation shall have power to indemnify its other officers, employees and other agents as set forth in the DGCL or any other applicable law. The Board of Directors shall have the power to delegate the determination of whether indemnification shall be given to any such person except executive officers to such officers or other persons as the Board of Directors shall determine.

(c) Expenses. The corporation shall advance to any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director or executive officer, of the corporation, or is or was serving at the request of the corporation as a director or executive officer of another corporation, partnership, joint venture, trust or other enterprise, prior to the final disposition of the proceeding, promptly following request therefor, all expenses incurred by any director or executive officer in connection with such proceeding, provided, however, that, if the DGCL requires, an advancement of expenses incurred by a director or officer in his or her capacity as a director or

officer (and not in any other capacity in which service was or is rendered by such indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the corporation of an undertaking, by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal that such indemnitee is not entitled to be indemnified for such expenses under this Section 43 or otherwise.

Notwithstanding the foregoing, unless otherwise determined pursuant to paragraph (e) of this Bylaw, no advance shall be made by the corporation to an executive officer of the corporation (except by reason of the fact that such executive officer is or was a director of the corporation, in which event this paragraph shall not apply) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, if a determination is reasonably and promptly made (i) by a majority vote of a quorum consisting of directors who were not parties to the proceeding, even if not a quorum, or (ii) by a committee of such directors designated by a majority of such directors, even though less than a quorum, or (iii) if there are no such directors, or such directors so direct, by independent legal counsel in a written opinion, that the facts known to the decision-making party at the time such determination is made demonstrate clearly and convincingly that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation.

(d) Enforcement. Without the necessity of entering into an express contract, all rights to indemnification and advances to directors and executive officers under this Bylaw shall be deemed to be contractual rights and be effective to the same extent and as if provided for in a contract between the corporation and the director or executive officer. Any right to indemnification or advances granted by this Bylaw to a director or executive officer shall be enforceable by or on behalf of the person holding such right in any court of competent jurisdiction if (i) the claim for indemnification or advances is denied, in whole or in part, or (ii) no disposition of such claim is made within ninety (90) days of request therefor. The claimant in such enforcement action, if successful in whole or in part, shall be entitled to be paid also the expense of prosecuting the claim. In connection with any claim for indemnification, the corporation shall be entitled to raise as a defense to any such action that the claimant has not met the standards of conduct that make it permissible under the DGCL or any other applicable law for the corporation to indemnify the claimant for the amount claimed. In connection with any claim by an executive officer of the corporation (except in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that such executive officer is or was a director of the corporation) for advances, the corporation shall be entitled to raise as a defense as to any such action clear and convincing evidence that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation, or with respect to any criminal action or proceeding that such person acted without reasonable cause to believe that his conduct was lawful. Neither the failure of the corporation (including its Board of Directors, independent legal counsel or its stockholders) to have made a determination prior to the commencement of such action that indemnification of the claimant is proper in the circumstances because he has met the applicable standard of conduct set forth in the DGCL or any other applicable law, nor an actual determination by the corporation (including its Board of Directors, independent legal counsel or its stockholders) that the claimant has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that claimant has not met the applicable standard of conduct. In any suit brought by a director or executive officer to enforce a right to indemnification or to an advancement of expenses hereunder, the burden of proving that the director or executive officer is not entitled to be indemnified, or to such advancement of expenses, under this Article XI or otherwise shall be on the corporation.

(e) Non-Exclusivity of Rights. The rights conferred on any person by this Bylaw shall not be exclusive of any other right which such person may have or hereafter acquire under any applicable statute, provision of the Certificate of Incorporation, Bylaws, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in his official capacity and as to action in another capacity while holding office. The corporation is specifically authorized to enter into individual contracts with any or all of its directors, officers, employees or agents respecting indemnification and advances, to the fullest extent not prohibited by the DGCL or any other applicable law.

(f) Survival of Rights. The rights conferred on any person by this Bylaw shall continue as to a person who has ceased to be a director or executive officer and shall inure to the benefit of the heirs, executors and administrators of such a person.

(g) Insurance. To the fullest extent permitted by the DGCL, or any other applicable law, the corporation, upon approval by the Board of Directors, may purchase insurance on behalf of any person required or permitted to be indemnified pursuant to this Bylaw.

(h) Amendments. Any repeal or modification of this Bylaw shall only be prospective and shall not affect the rights under this Bylaw in effect at the time of the alleged occurrence of any action or omission to act that is the cause of any proceeding against any agent of the corporation.

(i) Saving Clause. If this Bylaw or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, then the corporation shall nevertheless indemnify each director and executive officer to the full extent not prohibited by any applicable portion of this Bylaw that shall not have been invalidated, or by any other applicable law. If this Section 43 shall be invalid due to the application of the indemnification provisions of another jurisdiction, then the corporation shall indemnify each director and executive officer to the full extent under applicable law.

(j) Certain Definitions. For the purposes of this Bylaw, the following definitions shall apply:

(1) The term “proceeding” shall be broadly construed and shall include, without limitation, the investigation, preparation, prosecution, defense, settlement, arbitration and appeal of, and the giving of testimony in, any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative.

(2) The term “expenses” shall be broadly construed and shall include, without limitation, court costs, attorneys’ fees, witness fees, fines, amounts paid in settlement or judgment and any other costs and expenses of any nature or kind incurred in connection with any proceeding.

(3) The term the "corporation" shall include, in addition to the resulting corporation, any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, and employees or agents, so that any person who is or was a director, officer, employee or agent of such constituent corporation, or is or was serving at the request of such constituent corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, shall stand in the same position under the provisions of this Bylaw with respect to the resulting or surviving corporation as he would have with respect to such constituent corporation if its separate existence had continued.

(4) References to a "director," "executive officer," "officer," "employee," or "agent" of the corporation shall include, without limitation, situations where such person is serving at the request of the corporation as, respectively, a director, executive officer, officer, employee, trustee or agent of another corporation, partnership, joint venture, trust or other enterprise.

(5) References to "other enterprises" shall include employee benefit plans; references to "fines" shall include any excise taxes assessed on a person with respect to an employee benefit plan; and references to "serving at the request of the corporation" shall include any service as a director, officer, employee or agent of the corporation which imposes duties on, or involves services by, such director, officer, employee, or agent with respect to an employee benefit plan, its participants, or beneficiaries; and a person who acted in good faith and in a manner he reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan shall be deemed to have acted in a manner "not opposed to the best interests of the corporation" as referred to in this Bylaw.

ARTICLE XII

NOTICES

Section 44. Notices.

(a) Notice to Stockholders. Written notice to stockholders of stockholder meetings shall be given as provided in Section 7 herein. Without limiting the manner by which notice may otherwise be given effectively to stockholders under any agreement or contract with such stockholder, and except as otherwise required by law, written notice to stockholders for purposes other than stockholder meetings may be sent by United States mail or nationally recognized overnight courier, or by facsimile, telegraph or telex or by electronic mail or other electronic means.

(b) Notice to Directors. Any notice required to be given to any director may be given by the method stated in subsection (a), or as provided for in Section 21 of these Bylaws. If such notice is not delivered personally, it shall be sent to such address as such director shall have filed in writing with the Secretary, or, in the absence of such filing, to the last known post office address of such director.

(c) Affidavit of Mailing. An affidavit of mailing, executed by a duly authorized and competent employee of the corporation or its transfer agent appointed with respect to the class of stock affected or other agent, specifying the name and address or the names and addresses of the stockholder or stockholders, or director or directors, to whom any such notice or notices was or were given, and the time and method of giving the same, shall in the absence of fraud, be prima facie evidence of the facts therein contained.

(d) Methods of Notice. It shall not be necessary that the same method of giving notice be employed in respect of all recipients of notice, but one permissible method may be employed in respect of any one or more, and any other permissible method or methods may be employed in respect of any other or others.

(e) Notice to Person with Whom Communication Is Unlawful. Whenever notice is required to be given, under any provision of law or of the Certificate of Incorporation or Bylaws of the corporation, to any person with whom communication is unlawful, the giving of such notice to such person shall not be required and there shall be no duty to apply to any governmental authority or agency for a license or permit to give such notice to such person. Any action or meeting which shall be taken or held without notice to any such person with whom communication is unlawful shall have the same force and effect as if such notice had been duly given. In the event that the action taken by the corporation is such as to require the filing of a certificate under any provision of the DGCL, the certificate shall state, if such is the fact and if notice is required, that notice was given to all persons entitled to receive notice except such persons with whom communication is unlawful.

(f) Notice to Stockholders Sharing an Address. Except as otherwise prohibited under DGCL, any notice given under the provisions of DGCL, the Certificate of Incorporation or the Bylaws shall be effective if given by a single written notice to stockholders who share an address if consented to by the stockholders at that address to whom such notice is given. Such consent shall have been deemed to have been given if such stockholder fails to object in writing to the corporation within 60 days of having been given notice by the corporation of its intention to send the single notice. Any consent shall be revocable by the stockholder by written notice to the corporation.

ARTICLE XIII

AMENDMENTS

Section 45. Amendments. Except as otherwise stated herein, the Board of Directors is expressly empowered to adopt, amend or repeal Bylaws of the corporation. The stockholders shall also have power to adopt, amend or repeal the Bylaws of the corporation; *provided*, *however*, that, in addition to any vote of the holders of any class or series of stock of the corporation required by law or by the Certificate of Incorporation, such action by stockholders shall require the affirmative vote of the holders of at least a majority of the voting power of all of the then-outstanding shares of the capital stock of the corporation entitled to vote generally in the election of directors, voting together as a single class.

ARTICLE XIV

RIGHT OF FIRST REFUSAL

Section 46. Right of First Refusal. No stockholder shall sell, assign, pledge, or in any manner transfer any of the shares of stock, of the corporation or any right or interest therein, whether voluntarily or by operation of law, or by gift or otherwise, except by a transfer which meets the requirements hereinafter set forth in this bylaw:

(a) If the stockholder desires to sell or otherwise transfer any of his shares of stock, then the stockholder shall first give written notice thereof to the corporation. The notice shall name the proposed transferee and state the number of shares to be transferred, the proposed consideration, and all other terms and conditions of the proposed transfer.

(b) For thirty (30) days following receipt of such notice, the corporation shall have the option to purchase all (but not less than all) of the shares specified in the notice at the price and upon the terms set forth in such notice; *provided, however,* that, with the consent of the stockholder, the corporation shall have the option to purchase a lesser portion of the shares specified in said notice at the price and upon the terms set forth therein. In the event of a gift, property settlement or other transfer in which the proposed transferee is not paying the full price for the shares, and that is not otherwise exempted from the provisions of this Section 46, the price shall be deemed to be the fair market value of the stock at such time as determined in good faith by the Board of Directors. In the event the corporation elects to purchase all of the shares or, with consent of the stockholder, a lesser portion of the shares, it shall give written notice to the transferring stockholder of its election and settlement for said shares shall be made as provided below in paragraph (d).

(c) The corporation may assign its rights hereunder.

(d) In the event the corporation and/or its assignee(s) elect to acquire any of the shares of the transferring stockholder as specified in said transferring stockholder's notice, the Secretary of the corporation shall so notify the transferring stockholder and settlement thereof shall be made in cash within thirty (30) days after the Secretary of the corporation receives said transferring stockholder's notice; provided that if the terms of payment set forth in said transferring stockholder's notice were other than cash against delivery, the corporation and/or its assignee(s) shall pay for said shares on the same terms and conditions set forth in said transferring stockholder's notice.

(e) In the event the corporation and/or its assignees(s) do not elect to acquire all of the shares specified in the transferring stockholder's notice, said transferring stockholder may, within the sixty-day period following the expiration of the option rights granted to the corporation and/or its assignees(s) herein, transfer the shares specified in said transferring stockholder's notice which were not acquired by the corporation and/or its assignees(s) as specified in said transferring stockholder's notice. All shares so sold by said transferring stockholder shall continue to be subject to the provisions of this bylaw in the same manner as before said transfer.

(f) Anything to the contrary contained herein notwithstanding, the following transactions shall be exempt from the provisions of this bylaw:

(1) A stockholder's transfer of any or all shares held either during such stockholder's lifetime or on death by will or intestacy to such stockholder's immediate family or to any custodian or trustee for the account of such stockholder or such stockholder's immediate family or to any limited partnership of which the stockholder, members of such stockholder's immediate family or any trust for the account of such stockholder or such stockholder's immediate family will be the general of limited partner(s) of such partnership. "Immediate family" as used herein shall mean spouse, lineal descendant, father, mother, brother, or sister of the stockholder making such transfer.

(2) A stockholder's bona fide pledge or mortgage of any shares with a commercial lending institution, provided that any subsequent transfer of said shares by said institution shall be conducted in the manner set forth in this bylaw.

(3) A stockholder's transfer of any or all of such stockholder's shares to the corporation or to any other stockholder of the corporation.

(4) A stockholder's transfer of any or all of such stockholder's shares to a person who, at the time of such transfer, is an officer or director of the corporation.

(5) A corporate stockholder's transfer of any or all of its shares pursuant to and in accordance with the terms of any merger, consolidation, reclassification of shares or capital reorganization of the corporate stockholder, or pursuant to a sale of all or substantially all of the stock or assets of a corporate stockholder.

(6) A corporate stockholder's transfer of any or all of its shares to any or all of its stockholders.

(7) A transfer by a stockholder which is a limited or general partnership to any or all of its partners or former partners.

In any such case, the transferee, assignee, or other recipient shall receive and hold such stock subject to the provisions of this bylaw, and there shall be no further transfer of such stock except in accord with this bylaw.

(g) The provisions of this bylaw may be i) amended, ii) repealed or iii) waived with respect to any transfer, either by A) the stockholders, upon the express written consent of the owners of a majority of the voting power of the corporation (excluding the votes represented by those shares to be transferred by the transferring stockholder) or B) by the corporation, upon duly authorized action of its Board of Directors; *provided however,* such action by the Board of Directors shall require affirmative vote of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the shares of the Series Preferred (as defined in Section 40) voting together as a single class (excluding the votes represented by those shares to be transferred by the transferring stockholder, if applicable).

(h) Any sale or transfer, or purported sale or transfer, of securities of the corporation shall be null and void unless the terms, conditions, and provisions of this bylaw are strictly observed and followed.

(i) The foregoing right of first refusal shall terminate on either of the following dates, whichever shall first occur:

(1) On January 1, 2023; or

(2) Upon the date securities of the corporation are first offered to the public pursuant to a registration statement filed with, and declared effective by, the United States Securities and Exchange Commission under the Securities Act of 1933, as amended.

(j) The certificates representing shares of stock of the corporation shall bear on their face the following legend so long as the foregoing right of first refusal remains in effect:

> "THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO A RIGHT OF FIRST REFUSAL OPTION IN FAVOR OF THE CORPORATION AND/OR ITS ASSIGNEE(S), AS PROVIDED IN THE BYLAWS OF THE CORPORATION."

ARTICLE XV

LOANS TO OFFICERS

Section 47. Loans to Officers. Except as otherwise prohibited under applicable law, the corporation may lend money to, or guarantee any obligation of, or otherwise assist any officer or other employee of the corporation or of its subsidiaries, including any officer or employee who is a Director of the corporation or its subsidiaries, whenever, in the judgment of the Board of Directors, such loan, guarantee or assistance may reasonably be expected to benefit the corporation. The loan, guarantee or other assistance may be with or without interest and may be unsecured, or secured in such manner as the Board of Directors shall approve, including, without limitation, a pledge of shares of stock of the corporation. Nothing in these Bylaws shall be deemed to deny, limit or restrict the powers of guaranty or warranty of the corporation at common law or under any statute.

ARTICLE XVI

MISCELLANEOUS

Section 48. Annual Report.

(a) Subject to the provisions of paragraph (b) of this Bylaw, the Board of Directors shall cause an annual report to be sent to each stockholder of the corporation not later than one hundred twenty (120) days after the close of the corporation's fiscal year. Such report shall include a balance sheet as of the end of such fiscal year and an income statement and statement of changes in financial position for such fiscal year, accompanied by any report thereon of independent accountants or, if there is no such report, the certificate of an authorized

officer of the corporation that such statements were prepared without audit from the books and records of the corporation. When there are more than 100 stockholders of record of the corporation's shares, as determined by Section 605 of the CGCL, additional information as required by Section 1501(b) of the CGCL shall also be contained in such report, provided that if the corporation has a class of securities registered under Section 12 of the 1934 Act, the 1934 Act shall take precedence. Such report shall be sent to stockholders at least fifteen (15) days prior to the next annual meeting of stockholders after the end of the fiscal year to which it relates.

(b) If and so long as there are fewer than 100 holders of record of the corporation's shares, the requirement of sending of an annual report to the stockholders of the corporation is hereby expressly waived.

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NGM BIOPHARMACEUTICALS, INC.

AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

NGM BIOPHARMACEUTICALS, INC.

AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT

THIS AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT (the "***Agreement***") is entered into as of March 20, 2015, by and among **NGM BIOPHARMACEUTICALS, INC.**, a Delaware corporation (the "***Company***") and the holders of the Company's Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and Series D Preferred Stock (the "***Prior Investors***") listed on **Exhibits A, B, C** and **D** hereto, and **MERCK SHARP & DOHME CORP.** (the "***Purchaser***"). The Prior Investors and the Purchaser are referred to hereinafter as the "***Investors***" and each individually as an "***Investor***."

RECITALS

WHEREAS, the Company and the Prior Investors are parties to that certain Amended and Restated Investor Rights Agreement, dated October 9, 2014 (as amended, the "***Prior Agreement***"), which granted certain rights to the Prior Investors;

WHEREAS, the Company and the Prior Investors desire to amend and restate the Prior Agreement as set forth herein and to receive the rights created pursuant to this Agreement in lieu of the rights granted under the Prior Agreement;

WHEREAS, the Company proposes to sell and issue up to 17,666,666 shares of Series E Preferred Stock to the Purchaser pursuant to that certain Series E Preferred Stock Purchase Agreement (the "***Purchase Agreement***") of even date herewith; and

WHEREAS, in order to induce the Company to enter into the Purchase Agreement and to induce the Purchaser to invest funds in the Company pursuant to the Purchase Agreement, the Investors and the Company hereby agree to enter into this Agreement to amend and restate the Prior Agreement and to set forth their agreements and understanding with respect to the rights granted to the Investors by the Company.

NOW, THEREFORE, in consideration of the above recitals and the mutual covenants made herein, the parties hereby agree that the Prior Agreement is hereby amended and restated to read in its entirety as follows:

SECTION 1. GENERAL.

1.1 Definitions. As used in this Agreement the following terms shall have the following respective meanings:

(a) ***"Exchange Act"*** means the Securities Exchange Act of 1934, as amended.

(b) ***"Form S-3"*** means such form under the Securities Act as in effect on the date hereof or any successor or similar registration form under the Securities Act subsequently adopted by the SEC which permits inclusion or incorporation of substantial information by reference to other documents filed by the Company with the SEC.

(c) ***"Holder"*** means any person owning of record Registrable Securities that have not been sold to the public or any assignee of record of such Registrable Securities in accordance with Section 2.9 hereof.

(d) ***"Initial Offering"*** means the Company's first firm commitment underwritten public offering of its Common Stock registered under the Securities Act.

(e) ***"Merck"*** means Merck Sharp & Dohme Corp.

(f) ***"Qualified IPO"*** shall have the meaning as set forth in the Company's Amended and Restated Certificate of Incorporation, as may be amended from time to time.

(g) ***"Register," "registered"*** and ***"registration"*** refer to a registration effected by preparing and filing a registration statement in compliance with the Securities Act, and the declaration or ordering of effectiveness of such registration statement or document.

(h) ***"Registrable Securities"*** means (a) Common Stock of the Company issuable or issued upon conversion of the Shares and (b) any Common Stock of the Company issued as (or issuable upon the conversion or exercise of any warrant, right or other security which is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, such above-described securities. Notwithstanding the foregoing, Registrable Securities shall not include any securities (i) sold by a person to the public either pursuant to a registration statement or Rule 144, (ii) sold in a private transaction in which the transferor's rights under Section 2 of this Agreement are not assigned or (iii) issued as a result of a "Special Mandatory Conversion," as such term is defined in the Company's Amended and Restated Certificate of Incorporation in effect as of the date hereof. Moreover, the Common Stock of the Company issuable or issued upon conversion of Shares held by the Purchaser (or any Common Stock of the Company issued as (or issuable upon the conversion or exercise of any warrant, right or other security which is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, such Shares held by the Purchaser) shall not be deemed "Registrable Securities" for purposes of Section 2.2 and the Purchaser shall not be deemed a Holder for purposes of Section 2.2.

(i) ***"Registrable Securities then outstanding"*** shall be the number of shares of the Company's Common Stock that are Registrable Securities and either (a) are then issued and outstanding or (b) are issuable pursuant to then exercisable or convertible securities.

(j) ***"Registration Expenses"*** shall mean all expenses incurred by the Company in complying with Sections 2.2, 2.3 and 2.4 hereof, including, without limitation, all registration and filing fees, printing expenses, fees and disbursements of counsel for the Company, reasonable fees and disbursements not to exceed thirty-five thousand dollars ($35,000) of a single special counsel for the Holders, blue sky fees and expenses and the expense of any special audits incident to or required by any such registration (but excluding the compensation of regular employees of the Company which shall be paid in any event by the Company).

(k) ***"SEC"*** or ***"Commission"*** means the Securities and Exchange Commission.

(l) ***"Securities Act"*** shall mean the Securities Act of 1933, as amended.

(m) ***"Selling Expenses"*** shall mean all underwriting discounts and selling commissions applicable to the sale.

(n) ***"Series A Preferred"*** shall mean the Company's Series A Preferred Stock, par value $0.001 per share.

(o) ***"Series B Preferred"*** shall mean the Company's Series B Preferred Stock, par value $0.001 per share.

(p) ***"Series C Preferred"*** shall mean the Company's Series C Preferred Stock, par value $0.001 per share.

(q) ***"Series D Preferred"*** shall mean the Company's Series D Preferred Stock, par value $0.001 per share.

(r) ***"Series E Preferred"*** shall mean the Company's Series E Preferred Stock, par value $0.001 per share.

(s) ***"Shares"*** shall mean the (1) Series A Preferred (i) held by the Prior Investors listed on Exhibit A hereto and their permitted assigns, and (ii) issued or issuable upon exercise of that certain warrant to purchase Series A Preferred Stock held by Silicon Valley Bank (except with respect to the rights of Holders set forth in Sections 2.2 and 2.4); (2) Series B Preferred held by the Prior Investors listed on Exhibit B hereto and their permitted assigns, (3) the Series C Preferred held by the Prior Investors listed on Exhibit C hereto and their permitted assigns, (4) the Series D Preferred held by the Prior Investors listed on Exhibit D hereto and their permitted assigns and (5) the Series E Preferred issued pursuant to the Purchase Agreement and held by the Purchaser and its permitted assigns.

(t) ***"Special Registration Statement"*** shall mean (i) a registration statement relating to any employee benefit plan or (ii) with respect to any corporate reorganization or transaction under Rule 145 of the Securities Act, any registration statements related to the issuance or resale of securities issued in such a transaction or (iii) a registration related to stock issued upon conversion of debt securities.

SECTION 2. REGISTRATION; RESTRICTIONS ON TRANSFER.

2.1 Restrictions on Transfer.

(a) Each Holder agrees not to make any disposition of all or any portion of the Shares or Registrable Securities unless and until:

(i) there is then in effect a registration statement under the Securities Act covering such proposed disposition and such disposition is made in accordance with such registration statement; or

(ii) (A) The transferee has agreed in writing to be bound by the terms of this Agreement, (B) such Holder shall have notified the Company of the proposed disposition and shall have furnished the Company with a statement of the proposed disposition and (C) if reasonably requested by the Company, such Holder shall have furnished the Company with an opinion of counsel, reasonably satisfactory to the Company, that such disposition will not require registration of such shares under the Securities Act. It is agreed that the Company will not require opinions of counsel for transactions made pursuant to Rule 144, except in unusual circumstances. After its Initial Offering, the Company will not require any transferee pursuant to Rule 144 to be bound by the terms of this Agreement if the shares so transferred do not remain Registrable Securities hereunder following such transfer.

(b) Notwithstanding the provisions of subsection (a) above, no such restriction shall apply to a transfer by a Holder that is (A) a partnership transferring to its partners or former partners in accordance with partnership interests, (B) a corporation (or similar foreign entity) transferring to a wholly-owned subsidiary or any parent corporation or individual that owns all of the capital stock of the Holder, (C) a limited liability company transferring to its members or former members in accordance with their interest in the limited liability company, (D) an individual transferring to the Holder's family member or trust for the benefit of an individual Holder, (E) an individual or business entity transferring to a charitable foundation of which the Holder or partners or members of the Holder, or ancestors, descendants or spouses of the forgoing, represent a majority of the trustees or directors or (F) Allied Investment Partners PJSC ("***AIP***") transferring to transferees that are the beneficial owners of the shares transferred; *provided* that in each case the transferee will agree in writing to be subject to the terms of this Agreement to the same extent as if he were an original Holder hereunder.

(c) Each certificate representing Shares or Registrable Securities shall be stamped or otherwise imprinted with legends substantially similar to the following (in addition to any legend required under applicable state securities laws):

> THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 (THE "***ACT***") AND MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, ASSIGNED, PLEDGED OR HYPOTHECATED UNLESS AND UNTIL REGISTERED UNDER THE ACT OR UNLESS THE COMPANY HAS RECEIVED AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY AND ITS COUNSEL THAT SUCH REGISTRATION IS NOT REQUIRED.
>
> THE SALE, PLEDGE, HYPOTHECATION OR TRANSFER OF THE SECURITIES REPRESENTED BY THIS CERTIFICATE IS SUBJECT TO THE TERMS AND CONDITIONS OF A CERTAIN INVESTOR RIGHTS AGREEMENT BY AND BETWEEN THE STOCKHOLDER AND THE COMPANY. COPIES OF SUCH AGREEMENT MAY BE OBTAINED UPON WRITTEN REQUEST TO THE SECRETARY OF THE COMPANY.

(d) The Company shall be obligated to reissue promptly unlegended certificates at the request of any Holder thereof if the Company has completed its Initial Offering and the Holder shall have obtained an opinion of counsel (which counsel may be counsel to the Company) reasonably acceptable to the Company to the effect that the securities proposed to be disposed of may lawfully be so disposed of without registration, qualification and legend, *provided that* the second legend listed above shall be removed only at such time as the Holder of such certificate is no longer subject to any restrictions hereunder.

(e) Any legend endorsed on an instrument pursuant to applicable state securities laws and the stop-transfer instructions with respect to such securities shall be removed upon receipt by the Company of an order of the appropriate blue sky authority authorizing such removal.

2.2 Demand Registration.

(a) Subject to the conditions of this Section 2.2, if the Company shall receive a written request from the Holders of at least forty percent (40%) of the Registrable Securities (the "***Initiating Holders***") that the Company file a registration statement under the Securities Act covering the registration of at least a majority of the Registrable Securities then outstanding (or a lesser percent if the anticipated aggregate offering price, net of underwriting discounts and commissions, would exceed $10,000,000 (a "***Qualified Public Offering***")), then the Company shall, within thirty (30) days of the receipt thereof, give written notice of such request to all Holders, and subject to the limitations of this Section 2.2, effect, as expeditiously as reasonably possible, the registration under the Securities Act of all Registrable Securities that all Holders request to be registered.

(b) If the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to this Section 2.2 or any request pursuant to Section 2.4 and the Company shall include such information in the written notice referred to in Section 2.2(a) or Section 2.4(a), as applicable. In such event, the right of any Holder to include its Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall enter into an underwriting agreement in customary form with the underwriter or underwriters selected for such underwriting by the Holders of a majority of the Registrable Securities held by all Initiating Holders (which underwriter or underwriters shall be reasonably acceptable to the Company). Notwithstanding any other provision of this Section 2.2 or Section 2.4, if the underwriter advises the Company that marketing factors require a limitation of the number of securities to be underwritten (including Registrable Securities) then the Company shall so advise all Holders of Registrable Securities that would otherwise be underwritten pursuant hereto, and the number of shares that may be included in the underwriting shall be allocated to the Holders of such Registrable Securities on a *pro rata* basis based on the number of Registrable Securities held by all such Holders (including the Initiating Holders**)**. Any Registrable Securities excluded or withdrawn from such underwriting shall be withdrawn from the registration.

(c) The Company shall not be required to effect a registration pursuant to this Section 2.2:

(i) prior to the earlier of (A) the fifth anniversary of the date of this Agreement or (B) of the expiration of the restrictions on transfer set forth in Section 2.11 following the Initial Offering;

(ii) after the Company has effected three (3) registrations pursuant to this Section 2.2, and such registrations have been declared or ordered effective;

(iii) during the period starting with the date of filing, and ending on the date one hundred eighty (180) days following the effective date, of the registration statement pertaining to the Initial Offering (or such longer period as may be determined pursuant to Section 2.11 hereof); *provided* that the Company makes reasonable good faith efforts to cause such registration statement to become effective;

(iv) if within thirty (30) days of receipt of a written request from Initiating Holders pursuant to Section 2.2(a), the Company gives notice to the Holders of the Company's intention to file a registration statement for its Initial Offering within ninety (90) days; *provided* that the Company makes reasonable good faith efforts to cause such registration statement to become effective in that time;

(v) if the Company shall furnish to Holders requesting a registration statement pursuant to this Section 2.2 a certificate signed by the Chairman of the Board stating that in the good faith judgment of the Board of Directors of the Company, it would be seriously detrimental to the Company and its stockholders for such registration statement to be effected at such time, in which event the Company shall have the right to defer such filing for a period of not more than ninety (90) days after receipt of the request of the Initiating Holders; *provided* that such right to delay a request shall be exercised by the Company not more than once in any twelve (12) month period;

(vi) if the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Section 2.4 below; or

(vii) in any particular jurisdiction in which the Company would be required to qualify to do business or to execute a general consent to service of process in effecting such registration, qualification or compliance.

2.3 Piggyback Registrations. The Company shall notify all Holders of Registrable Securities in writing at least ten (10) days prior to the filing of any registration statement under the Securities Act for purposes of a public offering of securities of the Company (including, but not limited to, registration statements relating to secondary offerings of securities of the Company, but excluding Special Registration Statements) and will afford each such Holder an opportunity to include in such registration statement all or part of such Registrable Securities held by such Holder. Each Holder desiring to include in any such registration statement all or any part of the Registrable Securities held by it shall, within ten (10) days after the above-described notice from the Company, so notify the Company in writing. Such notice shall state

the intended method of disposition of the Registrable Securities by such Holder. If a Holder decides not to include all of its Registrable Securities in any registration statement thereafter filed by the Company, such Holder shall nevertheless continue to have the right to include any Registrable Securities in any subsequent registration statement or registration statements as may be filed by the Company with respect to offerings of its securities, all upon the terms and conditions set forth herein.

(a) Underwriting. If the registration statement of which the Company gives notice under this Section 2.3 is for an underwritten offering, the Company shall so advise the Holders of Registrable Securities. In such event, the right of any such Holder to include Registrable Securities in a registration pursuant to this Section 2.3 shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their Registrable Securities through such underwriting shall enter into an underwriting agreement in customary form with the underwriter or underwriters selected for such underwriting by the Company. Notwithstanding any other provision of this Agreement, if the underwriter determines in good faith that marketing factors require a limitation of the number of shares to be underwritten, the number of shares that may be included in the underwriting shall be allocated, first, to the Company; second, to the Holders on a *pro rata* basis based on the total number of Registrable Securities held by the Holders; and third, to any stockholder of the Company (other than a Holder) on a *pro rata* basis; provided, however, that no such reduction shall reduce the amount of securities of the selling Holders included in the registration below thirty percent (30%) of the total amount of securities included in such registration, unless such offering is the Initial Offering and such registration does not include shares of any other selling stockholders, in which event any or all of the Registrable Securities of the Holders may be excluded in accordance with the immediately preceding clause; and provided further that no securities of a Holder shall be excluded from a registration if any securities of a non-Holder are included in such registration. If any Holder disapproves of the terms of any such underwriting, such Holder may elect to withdraw therefrom by written notice to the Company and the underwriter, delivered at least ten (10) business days prior to the effective date of the registration statement. Any Registrable Securities excluded or withdrawn from such underwriting shall be excluded and withdrawn from the registration. For any Holder that is a partnership, limited liability company or corporation, the partners, retired partners, members, retired members and stockholders of such Holder, or the estates and family members of any such partners, retired partners, members and retired members and any trusts for the benefit of any of the foregoing person shall be deemed to be a single "Holder," and any *pro rata* reduction with respect to such "Holder" shall be based upon the aggregate amount of shares carrying registration rights owned by all entities and individuals included in such "Holder," as defined in this sentence.

(b) Right to Terminate Registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this Section 2.3 whether or not any Holder has elected to include securities in such registration. The Registration Expenses of such withdrawn registration shall be borne by the Company in accordance with Section 2.5 hereof.

2.4 Form S-3 Registration. In case the Company shall receive from any Holder or Holders of Registrable Securities a written request or requests that the Company effect a registration on Form S-3 (or any successor to Form S-3) or any similar short-form registration statement and any related qualification or compliance with respect to all or a part of the Registrable Securities owned by such Holder or Holders, the Company will:

(a) promptly give written notice of the proposed registration, and any related qualification or compliance, to all other Holders of Registrable Securities; and

(b) as soon as practicable, effect such registration and all such qualifications and compliances as may be so requested and as would permit or facilitate the sale and distribution of all or such portion of such Holder's or Holders' Registrable Securities as are specified in such request, together with all or such portion of the Registrable Securities of any other Holder or Holders joining in such request as are specified in a written request given within fifteen (15) days after receipt of such written notice from the Company; *provided*, *however*, that the Company shall not be obligated to effect any such registration, qualification or compliance pursuant to this Section 2.4:

(i) if Form S-3 is not available for such offering by the Holders, or

(ii) if the Holders, together with the holders of any other securities of the Company entitled to inclusion in such registration, propose to sell Registrable Securities and such other securities (if any) at an aggregate price to the public of less than two million dollars ($2,000,000), or

(iii) if within thirty (30) days of receipt of a written request from any Holder or Holders pursuant to this Section 2.4, the Company gives notice to such Holder or Holders of the Company's intention to make a public offering within ninety (90) days, other than pursuant to a Special Registration Statement; *provided* that the Company makes reasonable good faith efforts to cause such registration statement to become effective in that time;

(iv) if the Company shall furnish to the Holders a certificate signed by the Chairman of the Board of Directors of the Company stating that in the good faith judgment of the Board of Directors of the Company, it would be seriously detrimental to the Company and its stockholders for such Form S-3 registration to be effected at such time, in which event the Company shall have the right to defer the filing of the Form S-3 registration statement for a period of not more than ninety (90) days after receipt of the request of the Holder or Holders under this Section 2.4; *provided*, that such right to delay a request shall be exercised by the Company not more than twice in any twelve (12) month period, or

(v) if the Company has, within the twelve (12) month period preceding the date of such request, already effected two (2) registrations on Form S-3 for the Holders pursuant to this Section 2.4, or

(vi) in any particular jurisdiction in which the Company would be required to qualify to do business or to execute a general consent to service of process in effecting such registration, qualification or compliance.

(c) Subject to the foregoing, the Company shall file a Form S-3 registration statement covering the Registrable Securities and other securities so requested to be registered as soon as practicable after receipt of the requests of the Holders. Registrations effected pursuant to this Section 2.4 shall not be counted as demands for registration or registrations effected pursuant to Section 2.2.

2.5 Expenses of Registration. Except as specifically provided herein, all Registration Expenses incurred in connection with any registration, qualification or compliance pursuant to Section 2.2, 2.3 or 2.4 herein shall be borne by the Company. All Selling Expenses incurred in connection with any registrations hereunder, shall be borne by the holders of the securities so registered *pro rata* on the basis of the number of shares so registered. The Company shall not, however, be required to pay for expenses of any registration proceeding begun pursuant to Section 2.2 or 2.4, the request of which has been subsequently withdrawn by the Initiating Holders unless (a) the withdrawal is based upon material adverse information concerning the Company of which the Initiating Holders were not aware at the time of such request or (b) the Holders of a majority of Registrable Securities agree to deem such registration to have been effected as of the date of such withdrawal for purposes of determining whether the Company shall be obligated pursuant to Section 2.2(c) or 2.4(b)(5), as applicable, to undertake any subsequent registration, in which event such right shall be forfeited by all Holders. If the Holders are required to pay the Registration Expenses, such expenses shall be borne by the holders of securities (including Registrable Securities) requesting such registration in proportion to the number of shares for which registration was requested. If the Company is required to pay the Registration Expenses of a withdrawn offering pursuant to clause (a) above, then such registration shall not be deemed to have been effected for purposes of determining whether the Company shall be obligated pursuant to Section 2.2(c) or 2.4(b)(5), as applicable, to undertake any subsequent registration.

2.6 Obligations of the Company. Whenever required to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) prepare and file with the SEC a registration statement with respect to such Registrable Securities and use all reasonable efforts to cause such registration statement to become effective, and, upon the request of the Holders of a majority of the Registrable Securities registered thereunder, keep such registration statement effective for up to one hundred eighty (180) days or, if earlier, until the Holder or Holders have completed the distribution related thereto; provided, however, that at any time, upon written notice to the participating Holders and for a period not to exceed sixty (60) days thereafter (the "***Suspension Period***"), the Company may delay the filing or effectiveness of any registration statement or suspend the use or effectiveness of any registration statement (and the Initiating Holders hereby agree not to offer or sell any Registrable Securities pursuant to such registration statement during the Suspension Period) if the Company reasonably believes that there is or may be in existence material nonpublic information or events involving the Company, the failure of which to be disclosed in the prospectus included in the registration statement could result in a Violation (as defined below). In the event that the Company shall exercise its right to delay or suspend the filing or effectiveness of a registration hereunder, the applicable time period during which the registration statement is to remain effective shall be extended by a period of time equal to the duration of the Suspension Period. The Company may extend the Suspension Period for an additional consecutive thirty (30) days with the consent of the holders of a majority of the Registrable Securities registered under the applicable registration statement, which consent shall not be unreasonably withheld. In no event shall any Suspension Period, when taken together with all

prior Suspension Periods, exceed 90 days in the aggregate. If so directed by the Company, all Holders registering shares under such registration statement shall (i) not offer to sell any Registrable Securities pursuant to the registration statement during the period in which the delay or suspension is in effect after receiving notice of such delay or suspension; and (ii) use their best efforts to deliver to the Company (at the Company's expense) all copies, other than permanent file copies then in such Holders' possession, of the prospectus relating to such Registrable Securities current at the time of receipt of such notice. Notwithstanding the foregoing, the Company shall not be required to file, cause to become effective or maintain the effectiveness of any registration statement other than a registration statement on Form S-3 that contemplates a distribution of securities on a delayed or continuous basis pursuant to Rule 415 under the Securities Act.

(b) Prepare and file with the SEC such amendments and supplements to such registration statement and the prospectus used in connection with such registration statement as may be necessary to comply with the provisions of the Securities Act with respect to the disposition of all securities covered by such registration statement for the period set forth in subsection (a) above.

(c) Promptly notify the Holders of the effectiveness of such registration statement and furnish to the Holders such number of copies of a prospectus, including a preliminary prospectus, in conformity with the requirements of the Securities Act, and such other documents as they may reasonably request in order to facilitate the disposition of Registrable Securities owned by them.

(d) Following the effective date of such registration statement, notify the Holders of any request by the SEC that the Company amend or supplement such registration statement, or the associated prospectus.

(e) Use its reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or Blue Sky laws of such jurisdictions as shall be reasonably requested by the Holders; *provided* that the Company shall not be required in connection therewith or as a condition thereto to qualify to do business or to file a general consent to service of process in any such states or jurisdictions.

(f) In the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the managing underwriter(s) of such offering. Each Holder participating in such underwriting shall also enter into and perform its obligations under such an agreement.

(g) Notify each Holder of Registrable Securities covered by such registration statement at any time when a prospectus relating thereto is required to be delivered under the Securities Act of the happening of any event as a result of which the prospectus included in such registration statement, as then in effect, includes an untrue statement of a material fact or omits to state a material fact required to be stated therein or necessary to make the statements therein not misleading in the light of the circumstances then existing. The Company will use reasonable efforts to amend or supplement such prospectus in order to cause such prospectus not to include any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading in the light of the circumstances then existing.

(h) Use its reasonable efforts to furnish, on the date that such Registrable Securities are delivered to the underwriters for sale, if such securities are being sold through underwriters, (i) an opinion, dated as of such date, of the counsel representing the Company for the purposes of such registration, in form and substance as is customarily given to underwriters in an underwritten public offering, addressed to the underwriters, if any, and (ii) a letter, dated as of such date, from the independent certified public accountants of the Company, in form and substance as is customarily given by independent certified public accountants to underwriters in an underwritten public offering addressed to the underwriters.

(i) Provide a transfer agent and registrar for all Registrable Securities registered pursuant hereto and a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration.

(j) Cause all such Registrable Securities registered pursuant to this Section 2 to be listed on each national securities exchange or trading system on which similar securities issued by the Company are then listed.

(k) Make generally available to its security holder, and to deliver to each Holder participating in the registration statement, an earnings statement of the Company that will satisfy the provisions of Section 11(a) of the Securities Act covering a period of 12 months beginning after the effective date of such registration statement as soon as reasonably practicable after the termination of such 12-month period.

2.7 Delay of Registration; Furnishing Information.

(a) No Holder shall have any right to obtain or seek an injunction restraining or otherwise delaying any such registration as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 2.

(b) It shall be a condition precedent to the obligations of the Company to take any action pursuant to Section 2.2, 2.3 or 2.4 that the selling Holders shall furnish to the Company such information regarding themselves, the Registrable Securities held by them and the intended method of disposition of such securities as shall be required to effect the registration of their Registrable Securities.

(c) The Company shall have no obligation with respect to any registration requested pursuant to Section 2.2 or Section 2.4 if the number of shares or the anticipated aggregate offering price of the Registrable Securities to be included in the registration does not equal or exceed the number of shares or the anticipated aggregate offering price required to originally trigger the Company's obligation to initiate such registration as specified in Section 2.2 or Section 2.4, whichever is applicable.

2.8 Indemnification. In the event any Registrable Securities are included in a registration statement under Sections 2.2, 2.3 or 2.4:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each Holder, the partners, members, officers and directors of each Holder, any underwriter (as defined in the Securities Act) for such Holder and each person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any losses, claims, damages or liabilities (joint or several) to which they may become subject under the Securities Act, the Exchange Act or other federal or state law, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon any of the following statements, omissions or violations (collectively a "***Violation***") by the Company: (i) any untrue statement or alleged untrue statement of a material fact contained in such registration statement or incorporated reference therein, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto, (ii) the omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading or (iii) any violation or alleged violation by the Company of the Securities Act, the Exchange Act, any state securities law or any rule or regulation promulgated under the Securities Act, the Exchange Act or any state securities law in connection with the offering covered by such registration statement; and the Company will reimburse each such Holder, partner, member, officer, director, underwriter or controlling person for any legal or other expenses reasonably incurred by them in connection with investigating or defending any such loss, claim, damage, liability or action; *provided however*, that the indemnity agreement contained in this Section 2.8(a) shall not apply to amounts paid in settlement of any such loss, claim, damage, liability or action if such settlement is effected without the consent of the Company, which consent shall not be unreasonably withheld, nor shall the Company be liable in any such case for any such loss, claim, damage, liability or action to the extent that it arises out of or is based upon a Violation that occurs in reliance upon and in conformity with written information furnished expressly for use in connection with such registration by such Holder, partner, member, officer, director, underwriter or controlling person of such Holder.

(b) To the extent permitted by law, each Holder will, if Registrable Securities held by such Holder are included in the securities as to which such registration qualifications or compliance is being effected, indemnify and hold harmless the Company, each of its directors, its officers and each person, if any, who controls the Company within the meaning of the Securities Act, any underwriter and any other Holder selling securities under such registration statement or any of such other Holder's partners, directors or officers or any person who controls such Holder, against any losses, claims, damages or liabilities (joint or several) to which the Company or any such director, officer, controlling person, underwriter or other such Holder, or partner, director, officer or controlling person of such other Holder may become subject under the Securities Act, the Exchange Act or other federal or state law, insofar as such losses, claims, damages or liabilities (or actions in respect thereto) arise out of or are based upon any of the following statements: (i) any untrue statement or alleged untrue statement of a material fact contained in such registration statement or incorporated reference therein, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto, (ii) the omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading or (iii) any violation or alleged violation by the Company of the Securities Act (collectively, a "***Holder Violation***"), in each case to the extent (and only to the extent) that such Holder Violation occurs in reliance upon and in conformity with written information furnished by such Holder under an instrument

duly executed by such Holder and stated to be specifically for use in connection with such registration; and each such Holder will reimburse any legal or other expenses reasonably incurred by the Company or any such director, officer, controlling person, underwriter or other Holder, or partner, officer, director or controlling person of such other Holder in connection with investigating or defending any such loss, claim, damage, liability or action if it is judicially determined that there was such a Holder Violation; *provided, however,* that the indemnity agreement contained in this Section 2.8(b) shall not apply to amounts paid in settlement of any such loss, claim, damage, liability or action if such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld; *provided further*, that in no event shall any indemnity under this Section 2.8 exceed the net proceeds from the offering received by such Holder.

(c) Promptly after receipt by an indemnified party under this Section 2.8 of notice of the commencement of any action (including any governmental action), such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Section 2.8, deliver to the indemnifying party a written notice of the commencement thereof and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume the defense thereof with counsel mutually satisfactory to the parties; *provided, however,* that an indemnified party shall have the right to retain its own counsel, with the fees and expenses thereof to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such proceeding. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action shall relieve such indemnifying party of any liability to the indemnified party under this Section 2.8 to the extent, and only to the extent, prejudicial to its ability to defend such action, but the omission so to deliver written notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Section 2.8.

(d) If the indemnification provided for in this Section 2.8 is held by a court of competent jurisdiction to be unavailable to an indemnified party with respect to any losses, claims, damages or liabilities referred to herein, the indemnifying party, in lieu of indemnifying such indemnified party thereunder, shall to the extent permitted by applicable law contribute to the amount paid or payable by such indemnified party as a result of such loss, claim, damage or liability in such proportion as is appropriate to reflect the relative fault of the indemnifying party on the one hand and of the indemnified party on the other in connection with the Violation(s) or Holder Violation(s) that resulted in such loss, claim, damage or liability, as well as any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by a court of law by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission to state a material fact relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission; *provided, that* in no event shall any contribution by a Holder hereunder exceed the net proceeds from the offering received by such Holder.

(e) The obligations of the Company and Holders under this Section 2.8 shall survive completion of any offering of Registrable Securities in a registration statement and, with respect to liability arising from an offering to which this Section 2.8 would apply that is covered by a registration filed before termination of this Agreement, such termination. No indemnifying party, in the defense of any such claim or litigation, shall, except with the consent of each indemnified party, consent to entry of any judgment or enter into any settlement that does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnified Party of a release from all liability in respect to such claim or litigation.

2.9 Assignment of Registration Rights. The rights to cause the Company to register Registrable Securities pursuant to this Section 2 may be assigned by a Holder to a transferee or assignee of Registrable Securities (for so long as such shares remain Registrable Securities) that (a) is a subsidiary, parent, general partner, limited partner, retired partner, member, retired member or an individual that owns all of the capital stock of a Holder that is a corporation (or similar foreign entity), partnership or limited liability company, is a charitable foundation with the characteristics identified in Section 2.1(b)(E) above, (b) acquires Registrable Securities with an aggregate value of at least two hundred fifty thousand ($250,000) or all of such Holder's shares of Registrable securities if less or (c) is a transferee of AIP that is the beneficial owner of the Registrable Securities transferred; *provided, however,* (i) the transferor shall, within ten (10) days after such transfer, furnish to the Company written notice of the name and address of such transferee or assignee and the securities with respect to which such registration rights are being assigned and (ii) such transferee or assignee shall agree to be subject to all restrictions set forth in this Agreement.

2.10 Limitation on Subsequent Registration Rights. Other than as provided in Section 5.10, after the date of this Agreement, the Company shall not enter into any agreement with any holder or prospective holder of any securities of the Company that would grant such holder rights to demand the registration of shares of the Company's capital stock, or to include such shares in a registration statement that would reduce the number of shares includable by the Holders, without the approval of the holders of at least fifty-five percent (55%) of the outstanding Shares.

2.11 "Market Stand-Off" Agreement. Each Holder hereby agrees that such Holder shall not sell, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale, any Common Stock (or other securities) of the Company held by such Holder (other than those included in the registration) during the 180-day period following the effective date of the Initial Offering (or such longer period, not to exceed 34 days after the expiration of the 180-day period, as the underwriters or the Company shall request in order to facilitate compliance with FINRA Rule 2711 or NYSE Member Rule 472 or any successor or similar rule or regulation); provided, that, all officers and directors of the Company and holders of at least one percent (1%) of the Company's voting securities are bound by and have entered into similar agreements. The obligations described in this Section 2.11 shall not apply to a registration relating solely to employee benefit plans on Form S-1 or Form S-8 or similar forms that may be promulgated in the future, or a registration relating solely to a transaction on Form S-4 or similar forms that may be promulgated in the future.

2.12 Agreement to Furnish Information. Each Holder agrees to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriter that are consistent with the Holder's obligations under Section 2.11 or that are necessary to give further effect thereto. In addition, if requested by the Company or the representative of the underwriters of Common Stock (or other securities) of the Company, each Holder shall provide, within ten (10) days of such request, such information as may be required by the Company or such representative in connection with the completion of any public offering of the Company's securities pursuant to a registration statement filed under the Securities Act. The obligations described in Section 2.11 and this Section 2.12 shall not apply to a Special Registration Statement. The Company may impose stop-transfer instructions with respect to the shares of Common Stock (or other securities) subject to the foregoing restriction until the end of said day period. Each Holder agrees that any transferee of any shares of Registrable Securities shall be bound by Sections 2.11 and 2.12. The underwriters of the Company's stock are intended third party beneficiaries of Sections 2.11 and 2.12 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

2.13 Rule 144 Reporting. With a view to making available to the Holders the benefits of certain rules and regulations of the SEC that may permit the sale of the Registrable Securities to the public without registration, the Company agrees to use its best efforts to:

(a) Make and keep public information available, as those terms are understood and defined in SEC Rule 144 or any similar or analogous rule promulgated under the Securities Act, at all times after the effective date of the first registration filed by the Company for an offering of its securities to the general public;

(b) File with the SEC, in a timely manner, all reports and other documents required of the Company under the Exchange Act; and

(c) So long as a Holder owns any Registrable Securities, furnish to such Holder forthwith upon request: a written statement by the Company as to its compliance with the reporting requirements of said Rule 144 of the Securities Act, and of the Exchange Act (at any time after it has become subject to such reporting requirements); a copy of the most recent annual or quarterly report of the Company filed with the Commission; and such other reports and documents as a Holder may reasonably request in connection with availing itself of any rule or regulation of the SEC allowing it to sell any such securities without registration.

2.14 Termination of Registration Rights. The right of any Holder to request registration or inclusion of Registrable Securities in any registration pursuant to Section 2.2, Section 2.3 or Section 2.4 hereof shall terminate upon the earlier of: (i) the date five (5) years following the Qualified IPO; (ii) such time as the Company has completed its Initial Offering and all Registrable Securities of the Company issuable or issued upon conversion of the Shares held by and issuable to such Holder (and its affiliates) may be sold pursuant to Rule 144 during any ninety (90) day period (provided, however, that a Holder's piggyback registration rights pursuant to Section 2.3 hereof shall not terminate pursuant to subsection (ii) of this Section 2.14 so long as such Holder, as reflected on the Company's list of stockholders, holds more than 1% of the Company's outstanding Common Stock (treating all shares of Preferred Stock on an as converted basis)); or (iii) upon an "Acquisition" (as such term is defined in the Company's Amended and Restated Certificate of Incorporation as in effect as of the date hereof (an "***Acquisition***")) of the Company by a company subject to and in compliance with the reporting provisions of the Exchange Act. Upon such termination, such shares shall cease to be "Registrable Securities" hereunder for all purposes.

SECTION 3. COVENANTS OF THE COMPANY.

3.1 Basic Financial Information and Reporting.

(a) The Company will maintain true books and records of account in which full and correct entries will be made of all its business transactions pursuant to a system of accounting established and administered in accordance with generally accepted accounting principles consistently applied (except as noted therein or as disclosed to the recipients thereof), and will set aside on its books all such proper accruals and reserves as shall be required under generally accepted accounting principles consistently applied.

(b) As soon as practicable after the end of each fiscal year of the Company, and in any event within one hundred twenty (120) days thereafter, the Company will furnish each Major Investor (defined below) (i) a balance sheet of the Company, as at the end of such fiscal year, and a statement of income and a statement of cash flows of the Company, for such year, all prepared in accordance with generally accepted accounting principles consistently applied (except as noted therein or as disclosed to the recipients thereof) and setting forth in each case in comparative form the figures for the previous fiscal year, all in reasonable detail, and (ii) a table setting forth the capitalization structure of the Company as of the end of such fiscal year. Such financial statements shall be accompanied by a report and opinion thereon by independent public accountants selected by the Company's Board of Directors.

(c) The Company will furnish each Major Investor, as soon as practicable after the end of the first, second and third quarterly accounting periods in each fiscal year of the Company, and in any event within forty-five (45) days thereafter, a balance sheet of the Company as of the end of each such quarterly period, and a statement of income and a statement of cash flows of the Company for such period and for the current fiscal year to date, prepared in accordance with generally accepted accounting principles consistently applied (except as noted therein or as disclosed to the recipients thereof), with the exception that no notes need be attached to such statements and year-end audit adjustments may not have been made.

(d) So long as an Investor (with its affiliates) shall own Registrable Securities following the Closing (as defined in the Purchase Agreement) with an aggregate original purchase price of not less than six hundred thousand ($600,000) dollars, and after the Second Tranche Closing (as such term is defined in the Series D Preferred Stock Purchase Agreement dated October 9, 2014 (the "***Series D SPA***"), with an aggregate purchase price of greater than one million ($1,000,000) dollars (each, a "***Major Investor***"), the Company will furnish each such Major Investor to the extent requested by such Major Investor as soon as practicable after the end of each month, and in any event within twenty (20) days thereafter, a balance sheet of the Company as of the end of each such month, a statement of income and a statement of cash flows of the Company for such month and for the current fiscal year to date, including a comparison to plan figures for such period, prepared in accordance with generally accepted accounting principles consistently applied (except as noted thereon), with the exception that no notes need be attached to such statements and year-end audit adjustments may not have been made, and a table setting forth the capitalization structure of the Company as of a recent practicable date.

3.2 Inspection Rights. Each Major Investor shall have the right to visit and inspect any of the properties of the Company or any of its subsidiaries, and to discuss the affairs, finances and accounts of the Company or any of its subsidiaries with its officers, and to review such information as is reasonably requested all at such reasonable times and as often as may be reasonably requested; *provided, however,* that the Company shall not be obligated under this Section 3.2 with respect to a competitor of the Company or with respect to information which the Board of Directors determines in good faith is confidential or attorney-client privileged and should not, therefore, be disclosed.

3.3 Confidentiality of Records. Each Investor agrees to use the same degree of care as such Investor uses to protect its own confidential information to keep confidential any information furnished to such Investor that the Company identifies as being confidential or proprietary (so long as such information is not in the public domain), except that such Investor may disclose such proprietary or confidential information (i) to any general partner, limited partner, managing member, subsidiary or parent of such Investor as long as such partner, subsidiary, member or parent is advised of and agrees or has agreed to be bound by the confidentiality provisions of this Section 3.3 or comparable restrictions; (ii) at such time as it enters the public domain through no fault of such Investor; (iii) that is communicated to it free of any obligation of confidentiality; (iv) that is developed by Investor or its agents independently of and without reference to any confidential information communicated by the Company; or (v) as required by applicable law.

3.4 Reservation of Common Stock. The Company will at all times reserve and keep available, solely for issuance and delivery upon the conversion of the Preferred Stock, all Common Stock issuable from time to time upon such conversion.

3.5 Stock Vesting. Unless otherwise approved by the Board of Directors or a committee designated by the Board of Directors, including a majority of the Series Preferred Representatives (as defined in the Amended and Restated Certificate of Incorporation), all stock options and other stock equivalents issued after the date of this Agreement to employees, directors, consultants and other service providers shall be subject to vesting as follows: (a) twenty-five percent (25%) of such stock shall vest at the end of the first year following the earlier of the date of issuance or such person's services commencement date with the company, and (b) seventy-five percent (75%) of such stock shall vest monthly over the remaining three (3) years. All unvested restricted stock and similar equity grants (to the extent exercised) shall be purchasable by the Company upon the termination of the services of any employee or consultant at a price per share no greater than cost. No stock option, restricted stock or similar equity grant issued to officers and consultants shall be transferable until such time as such stock option, restricted stock or similar equity grant is fully vested.

3.6 Key Man Insurance. If requested by the Board of Directors, the Company will use its best efforts to obtain and maintain in full force and effect term life insurance on the life of Dr. Jin-Long Chen, naming the Company as beneficiary, in the amount determined by the Board.

3.7 Director and Officer Insurance. To the extent determined by the Board of Directors, the Company will use its best efforts to maintain in full force and effect director and officer liability insurance in an amount determined by the Board of Directors.

3.8 Proprietary Information and Inventions Agreement. The Company shall require all employees and consultants to execute and deliver a Proprietary Information and Inventions Agreement substantially in a form approved by the Company's counsel or Board of Directors.

3.9 Directors' Liability and Indemnification. The Company's Certificate of Incorporation and Bylaws shall provide (a) for elimination of the liability of director to the maximum extent permitted by law and (b) for indemnification of directors for acts on behalf of the Company to the maximum extent permitted by law. In addition, the Company shall enter into and use its best efforts to at all times maintain indemnification agreements reasonably acceptable to its directors to indemnify such directors to the maximum extent permissible under applicable law.

3.10 Market Stand-Off. The Company shall require each future securityholder of the Company to be bound by a similar Market Stand-Off agreement as outlined in Section 2.11 above.

3.11 Termination of Covenants. All covenants of the Company contained in Section 3 of this Agreement (other than the provisions of Section 3.3, 3.4 and 3.7) shall expire and terminate as to each Investor upon the earlier of (i) the effective date of the registration statement pertaining to an Initial Offering or (ii) upon an Acquisition.

SECTION 4. RIGHTS OF FIRST REFUSAL.

4.1 Subsequent Offerings. Subject to applicable securities laws, each Major Investor that is an "accredited investor" within the meaning of Regulation D under the Securities Act shall have a right of first refusal to purchase its *pro rata* share of all Equity Securities, as defined below, that the Company may, from time to time, propose to sell and issue after the date of this Agreement, other than the Equity Securities excluded by Section 4.7 hereof. Each Investor's *pro rata* share is equal to the ratio of (a) the number of Registrable Securities that such Investor is deemed to be a holder immediately prior to the issuance of such Equity Securities, to (b) the total number of shares of the Company's outstanding Common Stock (including all shares of Common Stock issued or issuable upon conversion of the Shares or upon the exercise of any outstanding warrants or options) immediately prior to the issuance of the Equity Securities. The term "***Equity Securities***" shall mean (i) any Common Stock, Preferred Stock or other security of the Company, (ii) any security convertible into or exercisable or exchangeable for, with or without consideration, any Common Stock, Preferred Stock or other security (including any option to purchase such a convertible security), (iii) any security carrying any warrant or right to subscribe to or purchase any Common Stock, Preferred Stock or other security or (iv) any such warrant or right.

4.2 Exercise of Rights. If the Company proposes to issue any Equity Securities, it shall give each Major Investor written notice of its intention, describing the Equity Securities, the price and the terms and conditions upon which the Company proposes to issue the same. Each Major Investor shall have fifteen (15) days from the giving of such notice to agree to purchase its *pro rata* share of the Equity Securities for the price and upon the terms and conditions specified in the notice by giving written notice to the Company and stating therein the quantity of Equity Securities to be purchased. Notwithstanding the foregoing, the Company shall not be required to offer or sell such Equity Securities to any Major Investor who would cause the Company to be in violation of applicable federal securities laws by virtue of such offer or sale.

4.3 Issuance of Equity Securities to Other Persons. If not all of the Major Investors elect to purchase their *pro rata* share of the Equity Securities, then the Company shall promptly notify in writing the Major Investors who do so elect and shall offer such Major Investors the right to acquire such unsubscribed shares on a *pro rata* basis. The Major Investors shall have five (5) business days after receipt of such notice to notify the Company of its election to purchase all or a portion thereof of the unsubscribed shares. The Company shall have ninety (90) days thereafter to sell the Equity Securities in respect of which the Major Investor's rights were not exercised, at a price not lower and upon general terms and conditions not materially more favorable to the purchasers thereof than specified in the Company's notice to the Major Investors pursuant to Section 4.2 hereof. If the Company has not sold such Equity Securities within ninety (90) days of the notice provided pursuant to Section 4.2, the Company shall not thereafter issue or sell any Equity Securities, without first offering such securities to the Major Investors in the manner provided above.

4.4 Sale Without Notice. In lieu of giving notice to the Major Investors prior to the issuance of Equity Securities as provided in Section 4.2, the Company may elect to give notice to the Major Investors within thirty (30) days after the issuance of Equity Securities. Such notice shall describe the type, price and terms of the Equity Securities. Each Major Investor shall have twenty (20) days from the date of receipt of such notice to elect to purchase up to the number of shares that would, if purchased by such Major Investor, maintain such Major Investor's *pro rata* share (as set forth in Section 4.1) of the Company's equity securities after giving effect to all such purchases. The closing of such sale shall occur within sixty (60) days of the date of notice to the Major Investors.

4.5 Termination and Waiver of Rights of First Refusal. The rights of first refusal established by this Section 4 shall not apply to and shall terminate upon the earlier of (i) the Qualified IPO or (ii) an Acquisition of the Company by a company subject to and in compliance with the reporting provisions of the Exchange Act. Notwithstanding Section 5.5 hereof, the rights of first refusal established by this Section 4 may be amended, or any provision waived, with and only with the written consent of the Company and the Major Investors holding at least fifty-five percent (55%) of the outstanding Registrable Securities, excluding any shares of Common Stock issued upon a "Special Mandatory Conversion" pursuant to the Restated Certificate.

4.6 Assignment of Rights of First Refusal. The rights of first refusal of each Investor under this Section 4 may be assigned to the same parties, subject to the same restrictions as any transfer of registration rights pursuant to Section 2.9.

4.7 Excluded Securities. The rights of first refusal established by this Section 4 shall have no application to any of the following Equity Securities:

(a) Shares of Series E Preferred Stock issued pursuant to the Purchase Agreement, and Common Stock issued upon conversion thereof;

(b) Shares of Series D Preferred Stock issued pursuant to the Series D SPA, and Common Stock issued upon conversion thereof;

(c) shares of Common Stock and/or options, warrants or other Common Stock purchase rights and the Common Stock issued pursuant to such options, warrants or other rights issued or to be issued after the date hereof to employees, officers or directors of, or consultants or advisors to, the Company or any subsidiary, pursuant to stock purchase or stock option plans or other arrangements that are approved by the Board of Directors including the affirmative vote of the majority of the Series Preferred Representatives;

(d) stock issued or issuable pursuant to any rights or agreements, options, warrants or convertible securities outstanding as of the date of this Agreement; and stock issued pursuant to any such rights or agreements granted after the date of this Agreement, so long as the rights of first refusal established by this Section 4 were complied with, waived or were inapplicable pursuant to any provision of this Section 4.7 with respect to the initial sale or grant by the Company of such rights or agreements;

(e) any Equity Securities issued for consideration other than cash pursuant to a merger, consolidation, acquisition or similar business combination approved by the Board of Directors including the affirmative vote of the majority of the Series Preferred Representatives;

(f) any Equity Securities issued in connection with any stock split, stock dividend or recapitalization by the Company;

(g) any Equity Securities that are issued by the Company pursuant to a registration statement filed under the Securities Act;

(h) any Equity Securities issued pursuant to any equipment loan or leasing arrangement, real property leasing arrangement or debt financing from a bank or similar financial or lending institution approved by the Board of Directors including the affirmative vote of the majority of the Series Preferred Representatives;

(i) any Equity Securities issued in connection with strategic transactions involving the Company and other entities the principal purpose of which is other than for the raising of capital through the sale of equity securities, including, without limitation (i) joint ventures, manufacturing, marketing or distribution arrangements or (ii) technology transfer or development arrangements; *provided* that the issuance of shares therein has been approved by the Company's Board of Directors including the affirmative vote of the majority of the Series Preferred Representatives.

SECTION 5. MISCELLANEOUS.

5.1 Governing Law. This Agreement shall be governed by and construed under the laws of the State of California in all respects as such laws are applied to agreements among California residents entered into and to be performed entirely within California, without reference to conflicts of laws or principles thereof.

5.2 Successors and Assigns. Except as otherwise expressly provided herein, the provisions hereof shall inure to the benefit of, and be binding upon, the parties hereto and their respective successors, assigns, heirs, executors and administrators and shall inure to the benefit of and be enforceable by each person who shall be a holder of Registrable Securities from time to time; *provided*, *however*, that prior to the receipt by the Company of adequate written notice of the transfer of any Registrable Securities specifying the full name and address of the transferee, the Company may deem and treat the person listed as the holder of such shares in its records as the absolute owner and holder of such shares for all purposes, including the payment of dividends or any redemption price.

5.3 Entire Agreement. This Agreement, the Exhibits and Schedules hereto, the Purchase Agreement and the other documents delivered pursuant thereto constitute the full and entire understanding and agreement between the parties with regard to the subjects hereof and no party shall be liable or bound to any other in any manner by any oral or written representations, warranties, covenants and agreements except as specifically set forth herein and therein. Each party expressly represents and warrants that it is not relying on any oral or written representations, warranties, covenants or agreements outside of this Agreement.

5.4 Severability. In the event one or more of the provisions of this Agreement should, for any reason, be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provisions of this Agreement, and this Agreement shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein.

5.5 Amendment and Waiver.

(a) Except as otherwise expressly provided, this Agreement may be amended or modified, and the obligations of the Company and the rights of the Holders under this Agreement may be waived, only upon the written consent of the Company and the holders of at least fifty-five percent (55%) of the outstanding Registrable Securities, excluding any shares of Common Stock issued upon the Special Mandatory Conversion of Shares pursuant to Article IV, Section (G)(5)(l) of the Restated Certificate.

(b) For the purposes of determining the number of Holders or Investors entitled to vote or exercise any rights hereunder, the Company shall be entitled to rely solely on the list of record holders of its stock as maintained by or on behalf of the Company.

5.6 Delays or Omissions. It is agreed that no delay or omission to exercise any right, power, or remedy accruing to any party, upon any breach, default or noncompliance by another party under this Agreement shall impair any such right, power or remedy, nor shall it be construed to be a waiver of any such breach, default or noncompliance, or any acquiescence therein, or of any similar breach, default or noncompliance thereafter occurring. It is further

agreed that any waiver, permit, consent or approval of any kind or character on any party's part of any breach, default or noncompliance under the Agreement or any waiver on such party's part of any provisions or conditions of this Agreement must be in writing and shall be effective only to the extent specifically set forth in such writing. All remedies, either under this Agreement, by law or otherwise afforded to any party, shall be cumulative and not alternative.

5.7 Notices. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient; if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid or (d) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the party to be notified at the address as set forth on the signature pages hereof or Exhibit A, Exhibit B, Exhibit C or Exhibit D hereto or at such other address or electronic mail address as such party may designate by ten (10) days advance written notice to the other parties hereto.

5.8 Attorneys' Fees. In the event that any suit or action is instituted under or in relation to this Agreement, including without limitation to enforce any provision in this Agreement, the prevailing party in such dispute shall be entitled to recover from the losing party all fees, costs and expenses of enforcing any right of such prevailing party under or with respect to this Agreement, including without limitation, such reasonable fees and expenses of attorneys and accountants, which shall include, without limitation, all fees, costs and expenses of appeals.

5.9 Titles and Subtitles. The titles of the sections and subsections of this Agreement are for convenience of reference only and are not to be considered in construing this Agreement.

5.10 Additional Investors. Notwithstanding anything to the contrary contained herein, if the Company shall issue additional shares of its Preferred Stock pursuant to the Purchase Agreement, any purchaser of such shares of Preferred Stock shall become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement and shall be deemed an "***Investor***," a "***Holder***" and a party hereunder. Notwithstanding anything to the contrary contained herein, if the Company shall issue Equity Securities in accordance with Section 4.7 (c), (e) or (g) of this Agreement, any purchaser of such Equity Securities may become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement and shall be deemed an "***Investor***," a "***Holder***" and a party hereunder.

5.11 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be an original, but all of which together shall constitute one instrument.

5.12 Aggregation of Stock. All shares of Registrable Securities held or acquired by affiliated entities or persons or persons or entities under common management or control shall be aggregated together for the purpose of determining the availability of any rights under this Agreement.

5.13 Pronouns. All pronouns contained herein, and any variations thereof, shall be deemed to refer to the masculine, feminine or neutral, singular or plural, as to the identity of the parties hereto may require.

5.14 Termination. This Agreement shall terminate and be of no further force or effect upon the earlier of (i) an Acquisition; or (ii) the date five (5) years following the Qualified IPO.

5.15 Amendment and Restatement. The Prior Agreement is terminated in its entirety and restated herein. Such termination and restatement is effective upon execution of this Agreement by the Company and the Prior Investors holding at least sixty-six and two thirds percent (66 2/3%) of the Registrable Securities (as the term is defined in the Prior Agreement) held by all Prior Investors. Upon such execution, all provisions of, rights granted and covenants made in the Prior Agreement are hereby waived, released and terminated in their entirety and shall have no further force or effect, including the rights set forth in Sections 4 and 5.7 any notice of or rights under such Prior Agreement. The rights and covenants contained in this Agreement set forth the sole and entire agreement among the Company and the holders of the Shares on the subject matter hereof and supersede any and all rights granted and covenants made under any prior agreements.

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

COMPANY:

NGM BIOPHARMACEUTICALS, INC.

/s/ William J. Rieflin
William J. Rieflin

Title: Chief Executive Officer

Address: 630 Gateway Blvd.
South San Francisco, CA 94080

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTOR:

MERCK SHARP & DOHME CORP.

By: /s/ Kenneth C. Frazier

Name: Kenneth C. Frazier

Title: Chairman, President and CEO

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTOR:

WILLIAM J. RIEFLIN

/s/ William J. Rieflin
WILLIAM J. RIEFLIN

RIEFLIN FAMILY TRUST U/A DTD 4/30/00

/s/ Bill Rieflin
Bill Rieflin

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTOR:

THE COLUMN GROUP, LP

By: The Column Group GP, LP
Its: General Partner

By: The Column Group, LLC
Its: General Partner

By: /s/ Peter Svennilson

Name: Peter Svennilson
Titles: Managing Partner

THE COLUMN GROUP II, LP

By: The Column Group II GP, LP
Its: General Partner

By: The Column Group, LLC
Its: General Partner

By: /s/ Peter Svennilson

Name: Peter Svennilson
Titles: Managing Partner

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTOR:

PROSPECT VENTURE PARTNERS III, L.P.

By: Prospect Management Co. III, L.L.C.
Its: General Partner

By: /s/ David Schnell

Name: David Schnell

Title: Managing Director

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTORS:

Rho Ventures V, L.P.

By: RMV V, L.L.C., its General Partner
By: Rho Capital Partners LLC, its Managing MemberGeneral Partner

By: /s/ Jeffrey Martin

Name: Jeffrey Martin
Titles: Attorney-in-fact

RHO VENTURES V AFFILIATES, L.L.C.

By: RMV V, L.L.C., its General Partner
By: Rho Capital Partners LLC, its Managing Member

By: /s/ Jeffrey Martin

Name: Jeffrey Martin
Titles: Attorney-in-fact

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTOR:

TICHENOR VENTURES, LLC

By: /s/ McHenry T. Tichenor
Name: McHenry T. Tichenor, Jr.
Title: Managing Member

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTOR:

RBC CEES TRUSTEE LIMITED AS TRUSTEE OF THE GPS INTERNATIONAL PENSION PLAN - G1169/G9453.

By: /s/ [Illegible]
Name: Authorized Signatory

By: /s/ [Illegible]
Name: Authorized Signatory

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTOR:

STANHOPE INVESTMENTS

By: /s/ Mohamed Ali Al Dhaheri & Mark Cutis

Name: Mohamed Ali Al Dhaheri & Mark Cutis

Title: Director & Business Officer

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTOR:

/s/ David Ross
DAVID ROSS

MOUNTAIN BERG LIMITED

By: /s/ N. Teagle

Name: N. Teagle

Title: Director

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTOR:

TOPSPIN FUND L.P.

By: /s/ Steven J. Winick

Name: Steven J. Winick

Title: Managing Director

IN WITNESS WHEREOF, the parties hereto have executed this **AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT** as of the date set forth in the first paragraph hereof.

INVESTOR:

DAVID V. GOEDDEL AND ALENA Z. GOEDDEL 2004 TRUST

By: /s/ Alena Goedde
Name: Alena Goeddel
Title: Trustee

HEATHER GOEDDEL-WILLIS

By: /s/ Heather Goedde-Willis
Name: Heather Goeddel-Willis
Title:

ERIK V. GOEDDEL IRREVOCABLE TRUST

By: /s/ Robert T. Stenson
Name: Robert T. Stenson
Title: Trustee

TYLER D. GOEDDEL IRREVOCABLE TRUST

By: /s/ Robert T. Stenson
Name: Robert T. Stenson
Title: Trustee

EXHIBIT A

SERIES A INVESTORS

The Column Group, L.P.

Prospect Venture Partners III, L.P.

Rho Ventures V, L.P.

Rho Ventures V Affiliates, L.L.C.

David V. Goeddel and Alena Z. Goeddel 2004 Trust

Heather Goeddel-Willis

Erik V. Goeddel Irrevocable Trust

Tyler D. Goeddel Irrevocable Trust

Heidrich Community Property Trust UDT 8/84

Heidrich Family Partners

John K. Rieflin 2004 Trust

Catherine R. Rieflin 2004 Trust

William H. Rieflin 2004 Trust

Rieflin Family Trust u/a dtd 4/3/00

Colella Family Trust

Colella Family Partners

Robert Tjian and Claudia Belcher, Trustee of the Tjian Belcher Revocable Trust dated July 11, 2001

Arthur D. Levinson

EXHIBIT B

SERIES B INVESTORS

The Column Group, L.P.

Prospect Venture Partners III, L.P.

Rho Ventures V, L.P.

Rho Ventures V Affiliates, L.L.C.

David V. Goeddel and Alena Z. Goeddel 2004 Trust

Heidrich Community Property Trust UDT 8/84

Heidrich Family Partners

John K. Rieflin 2004 Trust

Catherine R. Rieflin 2004 Trust

William H. Rieflin 2004 Trust

Colella Family Trust

Colella Family Partners

Robert Tjian and Claudia Belcher, Trustee of the Tjian Belcher Revocable Trust dated July 11, 2001

GC&H Investments, LLC

Richard and Kim Beleson 1999 Living Trust

Tichenor Ventures, LLC

Stanhope Investments

VIECO 3 LIMITED

Allied Investment Partners PJSC

EXHIBIT C

SERIES C INVESTORS

The Column Group, L.P.

Prospect Venture Partners III, L.P.

Rho Ventures V, L.P.

Rho Ventures V Affiliates, L.L.C.

Tichenor Ventures, LLC

Stanhope Investments

Corniche Capital Holdings Inc.

Black Meadow Limited

Udden Ltd

RBC cees Trustee Limited as
Trustee of the GPS
International Pension Plan -
G1169/G9453

David Ross

Bronfman Associates III

RBC Trustees (CI) Limited
as trustee of the EM Trust

OB Capital Ltd.

Topspin Fund L.P.

JCB Service No 1 Scheme

SM NGM LLC

Sandler Living Trust Dated August 5, 1999

EXHIBIT D

SERIES D INVESTORS

The Column Group, L.P.

The Column Group II, L.P.

Prospect Venture Partners III, L.P.

Tichenor Ventures, LLC

Oval (2245) Limited

Topspin Fund L.P.

Kravis Investment Partners LLC

Abu Dhabi National Insurance Company

Lord Frederick Charles Wellesley

Lord Arthur Gerald Mornington

RBC Trustees (CI) Limited
as trustee of the EM Trust

Tarzan Investment LLC

RBC cees Trustee Limited as
Trustee of the GPS
International Pension Plan -
G1169/G9453

Stanhope Investments

Corniche Capital Holdings Inc.

Black Meadow Limited

WOHI Limited

Bronfman Associates III

Pinnacle Trustees Limited as Trustee of the Massenet Trust

Vieco 3 Limited

NGM BIOPHARMACEUTICALS, INC.

2008 EQUITY INCENTIVE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: JANUARY 18, 2008
APPROVED BY THE STOCKHOLDERS: JANUARY 18, 2008
AMENDED BY THE BOARD OF DIRECTORS: MARCH 9, 2010
AMENDED BY STOCKHOLDERS: MARCH 9, 2010
AMENDED BY THE BOARD OF DIRECTORS: FEBRUARY 11, 2011
AMENDED BY STOCKHOLDERS: FEBRUARY 22, 2011
AMENDED BY THE BOARD OF DIRECTORS: DECEMBER 4, 2012
AMENDED BY THE BOARD OF DIRECTORS: MARCH 28, 2013
AMENDED BY STOCKHOLDERS: MARCH 29, 2013
AMENDED BY THE BOARD OF DIRECTORS: DECEMBER 12, 2014
AMENDED BY STOCKHOLDERS: FEBRUARY 18, 2015
AMENDED BY THE BOARD OF DIRECTORS: DECEMBER 8, 2015
AMENDED BY STOCKHOLDERS: MARCH 14, 2016
AMENDED BY THE BOARD OF DIRECTORS: DECEMBER 6, 2016
AMENDED BY STOCKHOLDERS: NOVEMBER 27, 2017
TERMINATION DATE: JANUARY 17, 2018

1. GENERAL.

(a) Eligible Stock Award Recipients. The persons eligible to receive Stock Awards are Employees, Directors and Consultants.

(b) Available Stock Awards. The Plan provides for the grant of the following Stock Awards: (i) Incentive Stock Options, (ii) Nonstatutory Stock Options, (iii) Restricted Stock Awards, (iv) Restricted Stock Unit Awards, and (v) Stock Appreciation Rights.

(c) Purpose. The Company, by means of the Plan, seeks to secure and retain the services of the group of persons eligible to receive Stock Awards as set forth in Section 1(a), to provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate, and to provide a means by which such eligible recipients may be given an opportunity to benefit from increases in value of the Common Stock through the granting of Stock Awards.

2. ADMINISTRATION.

(a) Administration by Board. The Board shall administer the Plan unless and until the Board delegates administration of the Plan to a Committee, as provided in Section 2(c).

(b) Powers of Board. The Board shall have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine from time to time (A) which of the persons eligible under the Plan shall be granted Stock Awards; (B) when and how each Stock Award shall be granted; (C) what type or combination of types of Stock Award shall be granted; (D) the provisions of each Stock Award granted (which need not be identical), including the time or times when a person shall be permitted to receive cash or Common Stock pursuant to a Stock Award; (E) the number of shares of Common Stock with respect to which a Stock Award shall be granted to each such person; and (F) the Fair Market Value applicable to a Stock Award.

(ii) To construe and interpret the Plan and Stock Awards granted under it, and to establish, amend and revoke rules and regulations for administration of the Plan. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan or in any Stock Award Agreement, in a manner and to the extent it shall deem necessary or expedient to make the Plan or Stock Award fully effective.

(iii) To settle all controversies regarding the Plan and Stock Awards granted under it.

(iv) To accelerate the time at which a Stock Award may first be exercised or the time during which a Stock Award or any part thereof will vest in accordance with the Plan, notwithstanding the provisions in the Stock Award stating the time at which it may first be exercised or the time during which it will vest.

(v) To suspend or terminate the Plan at any time. Suspension or termination of the Plan shall not impair rights and obligations under any Stock Award granted while the Plan is in effect except with the written consent of the affected Participant.

(vi) To amend the Plan in any respect the Board deems necessary or advisable, including, without limitation, relating to Incentive Stock Options and certain nonqualified deferred compensation under Section 409A of the Code and/or to bring the Plan or Stock Awards granted under the Plan into compliance therewith, subject to the limitations, if any, of applicable law. However, except as provided in Section 9(a) relating to Capitalization Adjustments, to the extent required by applicable law, stockholder approval shall be required for any amendment of the Plan that either (i) materially increases the number of shares of Common Stock available for issuance under the Plan, (ii) materially expands the class of individuals eligible to receive Stock Awards under the Plan, (iii) materially increases the benefits accruing to Participants under the Plan or materially reduces the price at which shares of Common Stock may be issued or purchased under the Plan, (iv) materially extends the term of the Plan, or (v) expands the types of Stock Awards available for issuance under the Plan. Except as provided above, rights under any Stock Award granted before amendment of the Plan shall not be impaired by any amendment of the Plan unless (i) the Company requests the consent of the affected Participant, and (ii) such Participant consents in writing.

(vii) To submit any amendment to the Plan for stockholder approval, including, but not limited to, amendments to the Plan intended to satisfy the requirements of Section 422 of the Code regarding Incentive Stock Options.

(viii) To approve forms of Stock Award Agreements for use under the Plan and to amend the terms of any one or more Stock Awards, including, but not limited to, amendments to provide terms more favorable than previously provided in the Stock Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided however,* that, the rights under any Stock Award shall not be impaired by any such amendment unless (i) the Company requests the consent of the affected Participant, and (ii) such Participant consents in writing. Notwithstanding the foregoing, subject to the limitations of applicable law, if any, and without the affected Participant's consent, the Board may amend the terms of any one or more Stock Awards if necessary to maintain the qualified status of the Stock Award as an Incentive Stock Option or to bring the Stock Award into compliance with Section 409A of the Code and the related guidance thereunder.

(ix) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Stock Awards.

(x) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees, Directors or Consultants who are foreign nationals or employed outside the United States.

(xi) To effect, at any time and from time to time, with the consent of any adversely affected Optionholder, (1) the reduction of the exercise price of any outstanding Option under the Plan, (2) the cancellation of any outstanding Option under the Plan and the grant in substitution therefor of (A) a new Option under the Plan or another equity plan of the Company covering the same or a different number of shares of Common Stock, (B) a Restricted Stock Award, (C) a Stock Appreciation Right, (D) Restricted Stock Unit, (E) cash and/or (F) other valuable consideration (as determined by the Board, in its sole discretion), or (3) any other action that is treated as a repricing under generally accepted accounting principles; *provided*, *however*, that no such reduction or cancellation may be effected if it is determined, in the Company's sole discretion, that such reduction or cancellation would result in any such outstanding Option becoming subject to the requirements of Section 409A of the Code.

(c) Delegation to Committee. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee shall have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board shall thereafter be to the Committee or subcommittee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated.

(d) Delegation to an Officer. The Board may delegate to one or more Officers of the Company the authority to do one or both of the following: (i) designate Officers and Employees of the Company or any of its Subsidiaries to be recipients of Options (and, to the extent permitted by applicable law, other Stock Awards) and the terms thereof, and (ii) determine the number of shares of Common Stock to be subject to such Stock Awards granted to such Officers and Employees; *provided, however,* that the Board resolutions regarding such delegation shall specify the total number of shares of Common Stock that may be subject to the Stock Awards granted by such Officer and that such Officer may not grant a Stock Award to himself or herself. Notwithstanding the foregoing, the Board may not delegate authority to an Officer to determine the Fair Market Value of the Common Stock pursuant to Section 13(t) below.

(e) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board in good faith shall not be subject to review by any person and shall be final, binding and conclusive on all persons.

3. SHARES SUBJECT TO THE PLAN.

(a) Share Reserve. Subject to Section 9(a) relating to Capitalization Adjustments, the aggregate number of shares of Common Stock of the Company that may be issued pursuant to Stock Awards after the Effective Date shall not exceed 27,000,000 shares (the "***Share Reserve***"). For clarity, the limitation in this Section 3(a) is a limitation in the number of shares of Common Stock that may be issued pursuant to the Plan. Accordingly, this Section 3(a) does not limit the granting of Stock Awards except as provided in Section 7(a).

(b) Reversion of Shares to the Share Reserve. If any shares of Common Stock issued pursuant to a Stock Award are forfeited back to the Company because of the failure to meet a contingency or condition required to vest such shares in the Participant, then the shares which are forfeited shall revert to and again become available for issuance under the Plan. Also, any shares reacquired by the Company pursuant to Section 8(g) or as consideration for the exercise of an Option shall again become available for issuance under the Plan. Furthermore, if a Stock Award (i) expires or otherwise terminates without having been exercised in full or (ii) is settled in cash (*i.e.*, the holder of the Stock Award receives cash rather than stock), such expiration, termination or settlement shall not reduce (or otherwise offset) the number of shares of Common Stock that may be issued pursuant to the Plan. Notwithstanding the provisions of this Section 3(b), any such shares shall not be subsequently issued pursuant to the exercise of Incentive Stock Options.

(c) Incentive Stock Option Limit. Notwithstanding anything to the contrary in this Section 3(c), subject to the provisions of Section 9(a) relating to Capitalization Adjustments, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options shall be two time the Share Reserve.

(d) Source of Shares. The stock issuable under the Plan shall be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market.

4. ELIGIBILITY.

(a) Eligibility for Specific Stock Awards. Incentive Stock Options may be granted only to employees of the Company or a "parent corporation" or "subsidiary corporation" thereof (as such terms are defined in Sections 424(e) and (f) of the Code). Stock Awards other than Incentive Stock Options may be granted to Employees, Directors and Consultants.

(b) Ten Percent Stockholders. A Ten Percent Stockholder shall not be granted an Incentive Stock Option unless the exercise price of such Option is at least one hundred ten percent (110%) of the Fair Market Value of the Common Stock on the date of grant and the Option is not exercisable after the expiration of five (5) years from the date of grant.

(c) Consultants. A Consultant shall not be eligible for the grant of a Stock Award if, at the time of grant, either the offer or the sale of the Company's securities to such Consultant is not exempt under Rule 701 of the Securities Act ("***Rule 701***") because of the nature of the services that the Consultant is providing to the Company, because the Consultant is not a natural person, or because of any other provision of Rule 701, unless the Company determines that such grant need not comply with the requirements of Rule 701 and will satisfy another exemption under the Securities Act as well as comply with the securities laws of all other relevant jurisdictions.

5. OPTION PROVISIONS.

Each Option shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. All Options shall be separately designated Incentive Stock Options or Nonstatutory Stock Options at the time of grant, and, if certificates are issued, a separate certificate or certificates shall be issued for shares of Common Stock purchased on exercise of each type of Option. If an Option is not specifically designated as an Incentive Stock Option, then the Option shall be a Nonstatutory Stock Option. The provisions of separate Options need not be identical; *provided, however*, that each Option Agreement shall include (through incorporation of provisions hereof by reference in the Option Agreement or otherwise) the substance of each of the following provisions:

(a) Term. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, no Option shall be exercisable after the expiration of ten (10) years from the date of its grant or such shorter period specified in the Option Agreement.

(b) Exercise Price. Subject to the provisions of Section 4(b) regarding Incentive Stock Options granted to Ten Percent Stockholders, the exercise price of each Option shall be not less than one hundred percent (100%) of the Fair Market Value of the Common Stock subject to the Option on the date the Option is granted. Notwithstanding the foregoing, an Option may be granted with an exercise price lower than one hundred percent (100%) of the Fair Market Value of the Common Stock subject to the Option if such Option is granted pursuant to an assumption or substitution for another option in a manner consistent with the provisions of Section 424(a) of the Code (whether or not such options are Incentive Stock Options).

(c) Consideration. The purchase price of Common Stock acquired pursuant to the exercise of an Option shall be paid, to the extent permitted by applicable law and as determined by the Board in its sole discretion, by any combination of the methods of payment set forth below. The Board shall have the authority to grant Options that do not permit all of the following methods of payment (or otherwise restrict the ability to use certain methods) and to grant Options that require the consent of the Company to utilize a particular method of payment. The permitted methods of payment are as follows:

(i) by cash, check, bank draft or money order payable to the Company;

(ii) pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds;

(iii) by delivery to the Company (either by actual delivery or attestation) of shares of Common Stock;

(iv) by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issued upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price; *provided, however,* that the Company shall accept a cash or other payment from the Participant to the extent of any remaining balance of the aggregate exercise price not satisfied by such reduction in the number of whole shares to be issued; *provided, further,* that shares of Common Stock will no longer be outstanding under an Option and will not be exercisable thereafter to the extent that (A) shares are used to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to the Participant as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations; or

(v) in any other form of legal consideration that may be acceptable to the Board.

(d) Transferability of Options. The Board may, in its sole discretion, impose such limitations on the transferability of Options as the Board shall determine. In the absence of such a determination by the Board to the contrary, the following restrictions on the transferability of Options shall apply:

(i) Restrictions on Transfer. An Option shall not be transferable except by will or by the laws of descent and distribution and shall be exercisable during the lifetime of the Optionholder only by the Optionholder; *provided, however*, that the Board may, in its sole discretion, permit transfer of the Option to such extent as permitted by Rule 701 of the Securities Act at the time of the grant of the Option and in a manner consistent with applicable tax and securities laws upon the Optionholder's request.

(ii) Domestic Relations Orders. Notwithstanding the foregoing, an Option may be transferred pursuant to a domestic relations order, *provided, however,* that an Incentive Stock Option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(iii) Beneficiary Designation. Notwithstanding the foregoing, the Optionholder may, by delivering written notice to the Company, in a form provided by or otherwise satisfactory to the Company, designate a third party who, in the event of the death of the Optionholder, shall thereafter be the beneficiary of an Option with the right to exercise the Option and receive the Common Stock or other consideration resulting from the Option exercise.

(e) Vesting of Options Generally. The total number of shares of Common Stock subject to an Option may vest and therefore become exercisable in periodic installments that may or may not be equal. The Option may be subject to such other terms and conditions on the time or times when it may or may not be exercised (which may be based on the satisfaction of performance goals or other criteria) as the Board may deem appropriate. The vesting provisions of individual Options may vary. The provisions of this Section 5(e) are subject to any Option provisions governing the minimum number of shares of Common Stock as to which an Option may be exercised.

(f) Termination of Continuous Service. Except as otherwise provided in the applicable Option Agreement or other agreement between the Optionholder and the Company, in the event that an Optionholder's Continuous Service terminates (other than for Cause or upon the Optionholder's death or Disability), the Optionholder may exercise his or her Option (to the extent that the Optionholder was entitled to exercise such Option as of the date of termination of Continuous Service) but only within such period of time ending on the earlier of (i) the date three (3) months following the termination of the Optionholder's Continuous Service (or such longer or shorter period specified in the Option Agreement, which period shall not be less than thirty (30) days unless such termination is for Cause), or (ii) the expiration of the term of the Option as set forth in the Option Agreement. If, after termination of Continuous Service, the Optionholder does not exercise his or her Option within the time specified herein or in the Option Agreement (as applicable), the Option shall terminate.

(g) Extension of Termination Date. Except as otherwise provided in the applicable Option Agreement or other agreement between the Optionholder and the Company, if the exercise of the Option following the termination of the Optionholder's Continuous Service (other than for Cause or upon the Optionholder's death or Disability) would be prohibited at any time solely because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act, then the Option shall terminate on the earlier of (i) the expiration of a period of three (3) months after the termination of the Optionholder's Continuous Service during which the exercise of the Option would not be in violation of such registration requirements, or (ii) the expiration of the term of the Option as set forth in the Option Agreement.

(h) Disability of Optionholder. Except as otherwise provided in the applicable Option Agreement or other agreement between the Optionholder and the Company, in the event that an Optionholder's Continuous Service terminates as a result of the Optionholder's Disability, the Optionholder may exercise his or her Option (to the extent that the Optionholder was entitled to exercise such Option as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date twelve (12) months following such termination of Continuous Service (or such longer or shorter period specified in the Option Agreement, which period shall not be less than six (6) months), or (ii) the expiration of the term of the Option as set forth in the Option Agreement. If, after termination of Continuous Service, the Optionholder does not exercise his or her Option within the time specified herein or in the Option Agreement (as applicable), the Option shall terminate.

(i) Death of Optionholder. Except as otherwise provided in the applicable Option Agreement or other agreement between the Optionholder and the Company, in the event that (i) an Optionholder's Continuous Service terminates as a result of the Optionholder's death, or (ii) the Optionholder dies within the period (if any) specified in the Option Agreement after the termination of the Optionholder's Continuous Service for a reason other than death, then the Option may be exercised (to the extent the Optionholder was entitled to exercise such Option as of the date of death) by the Optionholder's estate, by a person who acquired the right to exercise the Option by bequest or inheritance or by a person designated as the beneficiary of the Option upon the Optionholder's death, but only within the period ending on the earlier of (i) the date eighteen (18) months following the date of death (or such longer or shorter period specified in the Option Agreement, which period shall not be less than six (6) months), or (ii) the expiration of the term of such Option as set forth in the Option Agreement. If, after the Optionholder's death, the Option is not exercised within the time specified herein or in the Option Agreement (as applicable), the Option shall terminate. If the Optionholder designates a third party beneficiary of the Option in accordance with Section 5(d)(iii), then upon the death of the Optionholder such designated beneficiary shall have the sole right to exercise the Option and receive the Common Stock or other consideration resulting from the Option exercise.

(j) Termination for Cause. Except as explicitly provided otherwise in an Optionholder's Option Agreement, in the event that an Optionholder's Continuous Service is terminated for Cause, the Option shall terminate upon the termination date of such Optionholder's Continuous Service, and the Optionholder shall be prohibited from exercising his or her Option from and after the time of such termination of Continuous Service.

(k) Non-Exempt Employees. No Option granted to an Employee that is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, shall be first exercisable for any shares of Common Stock until at least six months following the date of grant of the Option. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option will be exempt from his or her regular rate of pay.

(l) Early Exercise. The Option may, but need not, include a provision whereby the Optionholder may elect at any time before the Optionholder's Continuous Service terminates to exercise the Option as to any part or all of the shares of Common Stock subject to the Option prior to the full vesting of the Option. Subject to the "Repurchase Limitation" in Section 8(k), any unvested shares of Common Stock so purchased may be subject to a repurchase option in favor of the Company or to any other restriction the Board determines to be appropriate. Provided that the "Repurchase Limitation" in Section 8(k) is not violated, the Company shall not be required to exercise its repurchase option until at least six (6) months (or such longer or shorter period of time required to avoid classification of the Option as a liability for financial accounting purposes) have elapsed following exercise of the Option unless the Board otherwise specifically provides in the Option Agreement.

(m) Right of Repurchase. Subject to the "Repurchase Limitation" in Section 8(k), the Option may include a provision whereby the Company may elect to repurchase all or any part of the vested shares of Common Stock acquired by the Optionholder pursuant to the exercise of the Option.

(n) Right of First Refusal. The Option may include a provision whereby the Company may elect to exercise a right of first refusal following receipt of notice from the Optionholder of the intent to transfer all or any part of the shares of Common Stock received upon the exercise of the Option. Such right of first refusal shall be subject to the "Repurchase Limitation" in Section 8(k). Except as expressly provided in this Section 5(n) or in the Stock Award Agreement for the Option, such right of first refusal shall otherwise comply with any applicable provisions of the Bylaws of the Company.

6. PROVISIONS OF STOCK AWARDS OTHER THAN OPTIONS.

(a) Restricted Stock Awards. Each Restricted Stock Award Agreement shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. To the extent consistent with the Company's Bylaws, at the Board's election, shares of Common Stock may be (x) held in book entry form subject to the Company's instructions until any restrictions relating to the Restricted Stock Award lapse; or (y) evidenced by a certificate, which certificate shall be held in such form and manner as determined by the Board. The terms and conditions of Restricted Stock Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Award Agreements need not be identical; *provided, however*, that each Restricted Stock Award Agreement shall include (through incorporation of the provisions hereof by reference in the agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) past or future services actually or to be rendered to the Company or an Affiliate, or (B) any other form of legal consideration that may be acceptable to the Board in its sole discretion and permissible under applicable law.

(ii) Vesting. Subject to the "Repurchase Limitation" in Section 8(k), shares of Common Stock awarded under the Restricted Stock Award Agreement may be subject to forfeiture to the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Participant's Continuous Service. In the event a Participant's Continuous Service terminates, the Company may receive via a forfeiture condition, any or all of the shares of Common Stock held by the Participant which have not vested as of the date of termination of Continuous Service under the terms of the Restricted Stock Award Agreement.

(iv) Transferability. Rights to acquire shares of Common Stock under the Restricted Stock Award Agreement shall be transferable by the Participant only upon such terms and conditions as are set forth in the Restricted Stock Award Agreement, as the Board shall determine in its sole discretion, so long as Common Stock awarded under the Restricted Stock Award Agreement remains subject to the terms of the Restricted Stock Award Agreement.

(b) Restricted Stock Unit Awards. Each Restricted Stock Unit Award Agreement shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. The terms and conditions of Restricted Stock Unit Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Unit Award Agreements need not be identical, *provided, however,* that each Restricted Stock Unit Award Agreement shall include (through incorporation of the provisions hereof by reference in the Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. At the time of grant of a Restricted Stock Unit Award, the Board will determine the consideration, if any, to be paid by the Participant upon delivery of each share of Common Stock subject to the Restricted Stock Unit Award. The consideration to be paid (if any) by the Participant for each share of Common Stock subject to a Restricted Stock Unit Award may be paid in any form of legal consideration that may be acceptable to the Board in its sole discretion and permissible under applicable law.

(ii) Vesting. At the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(iii) Payment. A Restricted Stock Unit Award may be settled by the delivery of shares of Common Stock, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Restricted Stock Unit Award Agreement.

(iv) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the shares of Common Stock (or their cash equivalent) subject to a Restricted Stock Unit Award to a time after the vesting of such Restricted Stock Unit Award.

(v) Dividend Equivalents. Dividend equivalents may be credited in respect of shares of Common Stock covered by a Restricted Stock Unit Award, as determined by the Board and contained in the Restricted Stock Unit Award Agreement. At the sole discretion of the Board, such dividend equivalents may be converted into additional shares of Common Stock covered by the Restricted Stock Unit Award in such manner as determined by the Board. Any additional shares covered by the Restricted Stock Unit Award credited by reason of such dividend equivalents will be subject to all the terms and conditions of the underlying Restricted Stock Unit Award Agreement to which they relate.

(vi) Termination of Participant's Continuous Service. Except as otherwise provided in the applicable Restricted Stock Unit Award Agreement, such portion of the Restricted Stock Unit Award that has not vested will be forfeited upon the Participant's termination of Continuous Service.

(vii) Compliance with Section 409A of the Code. Notwithstanding anything to the contrary set forth herein, any Restricted Stock Unit Award granted under the Plan that is not exempt from the requirements of Section 409A of the Code shall contain such provisions so that such Restricted Stock Unit Award will comply with the requirements of Section 409A of the Code. Such restrictions, if any, shall be determined by the Board and contained in the Restricted Stock Unit Award Agreement evidencing such Restricted Stock Unit Award. For example, such restrictions may include, without limitation, a requirement that any Common Stock that is to be issued in a year following the year in which the Restricted Stock Unit Award vests must be issued in accordance with a fixed pre-determined schedule.

(c) Stock Appreciation Rights. Each Stock Appreciation Right Agreement shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. Stock Appreciation Rights may be granted as stand-alone Stock Awards or in tandem with other Stock Awards. The terms and conditions of Stock Appreciation Right Agreements may change from time to time, and the terms and conditions of separate Stock Appreciation Right Agreements need not be identical; *provided, however,* that each Stock Appreciation Right Agreement shall include (through incorporation of the provisions hereof by reference in the agreement or otherwise) the substance of each of the following provisions:

(i) Term. No Stock Appreciation Right shall be exercisable after the expiration of ten (10) years from the date of grant or such shorter period specified in the Stock Appreciation Right Agreement.

(ii) Strike Price. Each Stock Appreciation Right will be denominated in shares of Common Stock equivalents. The strike price of each Stock Appreciation Right granted as a stand-alone or tandem Stock Award shall not be less than one hundred percent (100%) of the Fair Market Value of the Common Stock equivalents subject to the Stock Appreciation Right on the date of grant.

(iii) Calculation of Appreciation. The appreciation distribution payable on the exercise of a Stock Appreciation Right will be not greater than an amount equal to the excess of (A) the aggregate Fair Market Value (on the date of the exercise of the Stock Appreciation Right) of a number of shares of Common Stock equal to the number of shares of Common Stock equivalents in which the Participant is vested under such Stock Appreciation Right, and with respect to which the Participant is exercising the Stock Appreciation Right on such date, over (B) the strike price that will be determined by the Board on the date of grant.

(iv) Vesting. At the time of the grant of a Stock Appreciation Right, the Board may impose such restrictions or conditions to the vesting of such Stock Appreciation Right as it, in its sole discretion, deems appropriate.

(v) Exercise. To exercise any outstanding Stock Appreciation Right, the Participant must provide written notice of exercise to the Company in compliance with the provisions of the Stock Appreciation Right Agreement evidencing such Stock Appreciation Right.

(vi) Non-Exempt Employees. No Stock Appreciation Right granted to an Employee that is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, shall be first exercisable for any shares of Common Stock until at least six months following the date of grant of the Stock Appreciation Right. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise of a Stock Appreciation Right will be exempt from his or her regular rate of pay.

(vii) Payment. The appreciation distribution in respect to a Stock Appreciation Right may be paid in Common Stock, in cash, in any combination of the two or in any other form of consideration, as determined by the Board and contained in the Stock Appreciation Right Agreement evidencing such Stock Appreciation Right.

(viii) Termination of Continuous Service. Except as otherwise provided in the applicable Stock Appreciation Right Agreement or other agreement between the Participant and the Company, in the event that a Participant's Continuous Service terminates (other than for Cause or upon the Participant's death or Disability), the Participant may exercise his or her Stock Appreciation Right (to the extent that the Participant was entitled to exercise such Stock Appreciation Right as of the date of termination of Continuous Service) but only within such period of time ending on the earlier of (A) the date three (3) months following the termination of the Participant's Continuous Service (or such longer or shorter period specified in the Stock Appreciation Right Agreement, which period shall not be less than thirty (30) days unless such termination is for Cause), or (B) the expiration of the term of the Stock Appreciation Right as set forth in the Stock Appreciation Right Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Stock Appreciation Right within the time specified herein or in the Stock Appreciation Right Agreement (as applicable), the Stock Appreciation Right shall terminate.

(ix) Disability of Participant. Except as otherwise provided in the applicable Stock Appreciation Right Agreement or other agreement between the Participant and the Company, in the event that a Participant's Continuous Service terminates as a result of the Participant's Disability, the Participant may exercise his or her Stock Appreciation Right (to the extent that the Participant was entitled to exercise such Stock Appreciation Right as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (A) the date twelve (12) months following such termination of Continuous Service (or such longer or shorter period specified in the Stock Appreciation Right Agreement, which period shall not be less than six (6) months), or (B) the expiration of the term of the Stock Appreciation Right as set forth in the Stock Appreciation Right Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Stock Appreciation Right within the time specified herein or in the Stock Appreciation Right Agreement (as applicable), the Stock Appreciation Right shall terminate.

(x) Death of Participant. Except as otherwise provided in the applicable Stock Appreciation Right Agreement or other agreement between the Participant and the Company, in the event that (i) a Participant's Continuous Service terminates as a result of the Participant's death, or (ii) the Participant dies within the period (if any) specified in the Stock Appreciation Right

Agreement after the termination of the Participant's Continuous Service for a reason other than death, then the Stock Appreciation Right may be exercised (to the extent the Participant was entitled to exercise such Stock Appreciation Right as of the date of death) by the Participant's estate, by a person who acquired the right to exercise the Stock Appreciation Right by bequest or inheritance or by a person designated as the beneficiary of the Stock Appreciation Right upon the Participant's death, but only within the period ending on the earlier of (i) the date eighteen (18) months following the date of death (or such longer or shorter period specified in the Stock Appreciation Right Agreement, which period shall not be less than six (6) months), or (ii) the expiration of the term of such Stock Appreciation Right as set forth in the Stock Appreciation Right Agreement. If, after the Participant's death, the Stock Appreciation Right is not exercised within the time specified herein or in the Stock Appreciation Right Agreement (as applicable), the Stock Appreciation Right shall terminate.

(xi) Termination for Cause. Except as explicitly provided otherwise in an Participant's Stock Appreciation Right Agreement, in the event that a Participant's Continuous Service is terminated for Cause, the Stock Appreciation Right shall terminate upon the termination date of such Participant's Continuous Service, and the Participant shall be prohibited from exercising his or her Stock Appreciation Right from and after the time of such termination of Continuous Service.

(xii) Compliance with Section 409A of the Code. Notwithstanding anything to the contrary set forth herein, any Stock Appreciation Rights granted under the Plan that are not exempt from the requirements of Section 409A of the Code shall contain such provisions so that such Stock Appreciation Rights will comply with the requirements of Section 409A of the Code. Such restrictions, if any, shall be determined by the Board and contained in the Stock Appreciation Right Agreement evidencing such Stock Appreciation Right. For example, such restrictions may include, without limitation, a requirement that a Stock Appreciation Right that is to be paid wholly or partly in cash must be exercised and paid in accordance with a fixed pre-determined schedule.

7. COVENANTS OF THE COMPANY.

(a) Availability of Shares. During the terms of the Stock Awards, the Company shall keep available at all times the number of shares of Common Stock reasonably required to satisfy such Stock Awards.

(b) Securities Law Compliance. The Company shall seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Stock Awards and to issue and sell shares of Common Stock upon exercise of the Stock Awards; *provided, however,* that this undertaking shall not require the Company to register under the Securities Act the Plan, any Stock Award or any Common Stock issued or issuable pursuant to any such Stock Award. If, after reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company shall be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Stock Awards unless and until such authority is obtained.

(c) No Obligation to Notify. The Company shall have no duty or obligation to any holder of a Stock Award to advise such holder as to the time or manner of exercising such Stock Award. Furthermore, the Company shall have no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of a Stock Award or a possible period in which the Stock Award may not be exercised. The Company has no duty or obligation to minimize the tax consequences of a Stock Award to the holder of such Stock Award.

8. MISCELLANEOUS.

(a) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock pursuant to Stock Awards shall constitute general funds of the Company.

(b) Corporate Action Constituting Grant of Stock Awards. Corporate action constituting a grant by the Company of a Stock Award to any Participant shall be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate, or letter evidencing the Stock Award is communicated to, or actually received or accepted by, the Participant.

(c) Stockholder Rights. No Participant shall be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to such Stock Award unless and until such Participant has satisfied all requirements for exercise of the Stock Award pursuant to its terms and the Participant shall not be deemed to be a stockholder of record until the issuance of the Common Stock pursuant to such exercise has been entered into the books and records of the Company.

(d) No Employment or Other Service Rights. Nothing in the Plan, any Stock Award Agreement or any other instrument executed thereunder or in connection with any Stock Award granted pursuant thereto shall confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Stock Award was granted or shall affect the right of the Company or an Affiliate to terminate (i) the employment of an Employee with or without notice and with or without cause, (ii) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (iii) the service of a Director pursuant to the Bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(e) Incentive Stock Option $100,000 Limitation. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Optionholder during any calendar year (under all plans of the Company and any Affiliates) exceeds one hundred thousand dollars ($100,000), the Options or portions thereof that exceed such limit (according to the order in which they were granted) shall be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement(s).

(f) Investment Assurances. The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Stock Award, (i) to give written assurances satisfactory to the Company as to the Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Stock Award; and (ii) to give written assurances satisfactory to the Company stating that the Participant is acquiring Common Stock subject to the Stock Award for the Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, shall be inoperative if (x) the issuance of the shares upon the exercise or acquisition of Common Stock under the Stock Award has been registered under a then currently effective registration statement under the Securities Act, or (y) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on stock certificates issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Common Stock.

(g) Withholding Obligations. To the extent provided by the terms of a Stock Award Agreement, the Company may, in its sole discretion, satisfy any federal, state or local tax withholding obligation relating to a Stock Award by any of the following means (in addition to the Company's right to withhold from any compensation paid to the Participant by the Company) or by a combination of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Stock Award; *provided, however*, that no shares of Common Stock are withheld with a value exceeding the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of the Stock Award as a liability for financial accounting purposes); (iii) withholding payment from any amounts otherwise payable to the Participant; (iv) withholding cash from a Stock Award settled in cash; or (v) by such other method as may be set forth in the Stock Award Agreement.

(h) Electronic Delivery. Any reference herein to a "written" agreement or document shall include any agreement or document delivered electronically or posted on the Company's intranet.

(i) Deferrals. To the extent permitted by applicable law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Stock Award may be deferred and may establish programs and procedures for deferral elections to be made by Participants. Deferrals by Participants will be made in accordance with Section 409A of the Code. Consistent with Section 409A of the Code, the Board may provide for distributions while a Participant is still an employee. The Board is authorized to make deferrals of Stock Awards and determine when, and in what annual percentages, Participants may receive payments, including lump sum payments, following the Participant's termination of employment or retirement, and implement such other terms and conditions consistent with the provisions of the Plan and in accordance with applicable law.

(j) Compliance with Section 409A. To the extent that the Board determines that any Stock Award granted hereunder is subject to Section 409A of the Code, the Stock Award Agreement evidencing such Stock Award shall incorporate the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code. To the extent applicable, the Plan and Stock Award Agreements shall be interpreted in accordance with Section 409A of the Code and Department of Treasury regulations and other interpretive guidance issued thereunder, including without limitation any such regulations or other guidance that may be issued or amended after the Effective Date. Notwithstanding any provision of the Plan to the contrary, in the event that following the Effective Date the Board determines that any Stock Award may be subject to Section 409A of the Code and related Department of Treasury guidance (including such Department of Treasury guidance as may be issued after the Effective Date), the Board may adopt such amendments to the Plan and the applicable Stock Award Agreement or adopt other policies and procedures (including amendments, policies and procedures with retroactive effect), or take any other actions, that the Board determines are necessary or appropriate to (1) exempt the Stock Award from Section 409A of the Code and/or preserve the intended tax treatment of the benefits provided with respect to the Stock Award, or (2) comply with the requirements of Section 409A of the Code and related Department of Treasury guidance.

(k) Repurchase Limitation. The terms of any repurchase option shall be specified in the Stock Award Agreement. The repurchase price for vested shares of Common Stock shall be the Fair Market Value of the shares of Common Stock on the date of repurchase. The repurchase price for unvested shares of Common Stock shall be the lower of (i) the Fair Market Value of the shares of Common Stock on the date of repurchase or (ii) their original purchase price. However, the Company shall not exercise its repurchase option until at least six (6) months (or such longer or shorter period of time necessary to avoid classification of the Stock Award as a liability for financial accounting purposes) have elapsed following delivery of shares of Common Stock subject to the Stock Award, unless otherwise specifically provided by the Board.

9. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; OTHER CORPORATE EVENTS.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board shall proportionately and appropriately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 3(c), and (iii) the class(es) and number of securities and price per share of stock subject to outstanding Stock Awards. The Board shall make such adjustments, and its determination shall be final, binding and conclusive.

(b) Dissolution or Liquidation. Except as otherwise provided in the Stock Award Agreement, in the event of a dissolution or liquidation of the Company, all outstanding Stock Awards (other than Stock Awards consisting of vested and outstanding shares of Common Stock not subject to the Company's right of repurchase) shall terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to the Company's repurchase option may be repurchased by the Company notwithstanding the fact that the holder of such Stock Award is providing Continuous Service, *provided, however,* that the

Board may, in its sole discretion, cause some or all Stock Awards to become fully vested, exercisable and/or no longer subject to repurchase or forfeiture (to the extent such Stock Awards have not previously expired or terminated) before the dissolution or liquidation is completed but contingent on its completion.

(c) Corporate Transaction. The following provisions shall apply to Stock Awards in the event of a Corporate Transaction unless otherwise provided in the instrument evidencing the Stock Award or any other written agreement between the Company or any Affiliate and the holder of the Stock Award or unless otherwise expressly provided by the Board at the time of grant of a Stock Award.

(i) Stock Awards May Be Assumed. Except as otherwise stated in the Stock Award Agreement, in the event of a Corporate Transaction, any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may assume or continue any or all Stock Awards outstanding under the Plan or may substitute similar stock awards for Stock Awards outstanding under the Plan (including but not limited to, awards to acquire the same consideration paid to the stockholders of the Company pursuant to the Corporate Transaction), and any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to Stock Awards may be assigned by the Company to the successor of the Company (or the successor's parent company, if any), in connection with such Corporate Transaction. A surviving corporation or acquiring corporation (or its parent) may choose to assume or continue only a portion of a Stock Award or substitute a similar stock award for only a portion of a Stock Award. The terms of any assumption, continuation or substitution shall be set by the Board in accordance with the provisions of Section 2.

(ii) Stock Awards Held by Current Participants. Except as otherwise stated in the Stock Award Agreement, in the event of a Corporate Transaction in which the surviving corporation or acquiring corporation (or its parent company) does not assume or continue such outstanding Stock Awards or substitute similar stock awards for such outstanding Stock Awards, then with respect to Stock Awards that have not been assumed, continued or substituted and that are held by Participants whose Continuous Service has not terminated prior to the effective time of the Corporate Transaction (referred to as the "***Current Participants***"), the vesting of such Stock Awards (and, if applicable, the time at which such Stock Awards may be exercised) shall (contingent upon the effectiveness of the Corporate Transaction) be accelerated in full to a date prior to the effective time of such Corporate Transaction as the Board shall determine (or, if the Board shall not determine such a date, to the date that is five (5) days prior to the effective time of the Corporate Transaction), and such Stock Awards shall terminate if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction, and any reacquisition or repurchase rights held by the Company with respect to such Stock Awards shall lapse (contingent upon the effectiveness of the Corporate Transaction).

(iii) Stock Awards Held by Persons other than Current Participants. Except as otherwise stated in the Stock Award Agreement, in the event of a Corporate Transaction in which the surviving corporation or acquiring corporation (or its parent company) does not assume or continue such outstanding Stock Awards or substitute similar stock awards for such

outstanding Stock Awards, then with respect to Stock Awards that have not been assumed, continued or substituted and that are held by persons other than Current Participants, the vesting of such Stock Awards (and, if applicable, the time at which such Stock Award may be exercised) shall not be accelerated and such Stock Awards (other than a Stock Award consisting of vested and outstanding shares of Common Stock not subject to the Company's right of repurchase) shall terminate if not exercised (if applicable) prior to the effective time of the Corporate Transaction; *provided, however,* that any reacquisition or repurchase rights held by the Company with respect to such Stock Awards shall not terminate and may continue to be exercised notwithstanding the Corporate Transaction.

(iv) Payment for Stock Awards in Lieu of Exercise. Notwithstanding the foregoing, in the event a Stock Award will terminate if not exercised prior to the effective time of a Corporate Transaction, the Board may provide, in its sole discretion, that the holder of such Stock Award may not exercise such Stock Award but will receive a payment, in such form as may be determined by the Board, equal in value to the excess, if any, of (A) the value of the property the holder of the Stock Award would have received upon the exercise of the Stock Award, over (B) any exercise price payable by such holder in connection with such exercise.

(d) Change in Control. A Stock Award may be subject to additional acceleration of vesting and exercisability upon or after a Change in Control as may be provided in the Stock Award Agreement for such Stock Award or as may be provided in any other written agreement between the Company or any Affiliate and the Participant, but in the absence of such provision, no such acceleration shall occur.

10. TERMINATION OR SUSPENSION OF THE PLAN.

(a) Plan Term. The Board may suspend or terminate the Plan at any time. Unless sooner terminated by the Board pursuant to Section 2, the Plan shall automatically terminate on the day before the tenth (10th) anniversary of the earlier of (i) the date the Plan is adopted by the Board, or (ii) the date the Plan is approved by the stockholders of the Company. No Stock Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) No Impairment of Rights. Suspension or termination of the Plan shall not impair rights and obligations under any Stock Award granted while the Plan is in effect except with the written consent of the affected Participant.

11. EFFECTIVE DATE OF PLAN.

This Plan shall become effective on the Effective Date.

12. CHOICE OF LAW.

The law of the State of California shall govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

13. DEFINITIONS. As used in the Plan, the following definitions shall apply to the capitalized terms indicated below:

(a) "***Affiliate***" means, at the time of determination, any "parent" or "majority-owned subsidiary" of the Company, as such terms are defined in Rule 405 of the Securities Act. The Board shall have the authority to determine the time or times at which "parent" or "majority-owned subsidiary" status is determined within the foregoing definition.

(b) "***Board***" means the Board of Directors of the Company.

(c) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Stock Award after the Effective Date without the receipt of consideration by the Company (through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or other transaction not involving the receipt of consideration by the Company). Notwithstanding the foregoing, the conversion of any convertible securities of the Company shall not be treated as a transaction "without the receipt of consideration" by the Company.

(d) "***Cause***" means with respect to a Participant, the occurrence of any of the following events: (i) such Participant's commission of any felony or any crime involving fraud, dishonesty or moral turpitude under the laws of the United States or any state thereof; (ii) such Participant's attempted commission of, or participation in, a fraud or act of dishonesty against the Company; (iii) such Participant's intentional, material violation of any contract or agreement between the Participant and the Company or of any statutory duty owed to the Company; (iv) such Participant's unauthorized use or disclosure of the Company's confidential information or trade secrets; or (v) such Participant's gross misconduct. The determination that a termination of the Participant's Continuous Service is either for Cause or without Cause shall be made by the Company in its sole discretion. Any determination by the Company that the Continuous Service of a Participant was terminated by reason of dismissal without Cause for the purposes of outstanding Stock Awards held by such Participant shall have no effect upon any determination of the rights or obligations of the Company or such Participant for any other purpose.

(e) "***Change in Control***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control shall not be deemed to occur (A) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities or (B) solely because the level of Ownership held by any Exchange Act Person (the "*Subject Person*") exceeds the designated percentage

threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control shall be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities representing more than fifty percent (50%) of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than fifty percent (50%) of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction;

(iii) the stockholders of the Company approve or the Board approves a plan of complete dissolution or liquidation of the Company, or a complete dissolution or liquidation of the Company shall otherwise occur, except for a liquidation into a parent corporation;

(iv) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than fifty percent (50%) of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; or

(v) individuals who, on the date this Plan is adopted by the Board, are members of the Board (the "***Incumbent Board***") cease for any reason to constitute at least a majority of the members of the Board; *provided, however,* that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member shall, for purposes of this Plan, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing definition or any other provision of this Plan, (A) the term Change in Control shall not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company, and (B) the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Participant shall supersede the foregoing definition with respect to Stock Awards subject to such agreement; *provided, however,* that if no definition of Change in Control or any analogous term is set forth in such an individual written agreement, the foregoing definition shall apply.

(f) "***Code***" means the Internal Revenue Code of 1986, as amended.

(g) "***Committee***" means a committee of one (1) or more Directors to whom authority has been delegated by the Board in accordance with Section 2(c).

(h) "***Common Stock***" means the common stock of the Company.

(i) "***Company***" means NGM Biopharmaceuticals, Inc., a Delaware corporation.

(j) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services, or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, shall not cause a Director to be considered a "Consultant" for purposes of the Plan.

(k) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Director, or Consultant or a change in the Entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, shall not terminate a Participant's Continuous Service; *provided, however*, if the Entity for which a Participant is rendering service ceases to qualify as an Affiliate, as determined by the Board in its sole discretion, such Participant's Continuous Service shall be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. For example, a change in status from an employee of the Company to a consultant of an Affiliate or to a Director shall not constitute an interruption of Continuous Service. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service shall be considered interrupted in the case of any leave of absence approved by that party, including sick leave, military leave or any other personal leave. Notwithstanding the foregoing, a leave of absence shall be treated as Continuous Service for purposes of vesting in a Stock Award only to such extent as may be provided in the Company's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law.

(l) "***Corporate Transaction***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) the consummation of a sale or other disposition of all or substantially all, as determined by the Board in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

(ii) the consummation of a sale or other disposition of at least ninety percent (90%) of the outstanding securities of the Company;

(iii) the consummation of a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) the consummation of a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(m) "***Director***" means a member of the Board.

(n) "***Disability***" means the inability of a Participant to engage in any substantially gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than twelve (12) months, and shall be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(o) "***Effective Date***" means the effective date of this Plan, which is the earlier of (i) the date that this Plan is first approved by the Company's stockholders, or (ii) the date this Plan is adopted by the Board.

(p) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, shall not cause a Director to be considered an "Employee" for purposes of the Plan.

(q) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(r) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended.

(s) "***Exchange Act Person***" means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" shall not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to an offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company; or (v) any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the Effective Date of the Plan as set forth in Section 11, is the Owner, directly or indirectly, of securities of the Company representing more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities.

(t) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined by the Board in compliance with Section 409A of the Code or, in the case of an Incentive Stock Option, in compliance with Section 422 of the Code.

(u) "***Incentive Stock Option***" means an Option that qualifies as an "incentive stock option" within the meaning of Section 422 of the Code and the regulations promulgated thereunder.

(v) "***Nonstatutory Stock Option***" means an Option that does not qualify as an Incentive Stock Option.

(w) "***Officer***" means any person designated by the Company as an officer.

(x) "***Option***" means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(y) "***Option Agreement***" means a written agreement between the Company and an Optionholder evidencing the terms and conditions of an Option grant. Each Option Agreement shall be subject to the terms and conditions of the Plan.

(z) "***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Option.

(aa) "***Own***," "***Owned***," "***Owner***," "***Ownership***" A person or Entity shall be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(bb) "***Participant***" means a person to whom a Stock Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Stock Award.

(cc) "***Plan***" means this NGM Biopharmaceuticals, Inc. 2008 Equity Incentive Plan.

(dd) "***Restricted Stock Award***" means an award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(a).

(ee) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award. Each Restricted Stock Award Agreement shall be subject to the terms and conditions of the Plan.

(ff) "***Restricted Stock Unit Award***" means a right to receive shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(b).

(gg) "***Restricted Stock Unit Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Unit Award evidencing the terms and conditions of a Restricted Stock Unit Award grant. Each Restricted Stock Unit Award Agreement shall be subject to the terms and conditions of the Plan.

(hh) "***Securities Act***" means the Securities Act of 1933, as amended.

(ii) "***Stock Appreciation Right***" means a right to receive the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 6(c).

(jj) "***Stock Appreciation Right Agreement***" means a written agreement between the Company and a holder of a Stock Appreciation Right evidencing the terms and conditions of a Stock Appreciation Right grant. Each Stock Appreciation Right Agreement shall be subject to the terms and conditions of the Plan.

(kk) "***Stock Award***" means any right to receive Common Stock granted under the Plan, including an Incentive Stock Option, a Nonstatutory Stock Option, a Restricted Stock Award, a Restricted Stock Unit Award, or a Stock Appreciation Right.

(ll) "***Stock Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of a Stock Award grant. Each Stock Award Agreement shall be subject to the terms and conditions of the Plan.

(mm) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than fifty percent (50%) of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation shall have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than fifty percent (50%) .

(nn) "***Ten Percent Stockholder***" means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or any Affiliate.

NGM BIOPHARMACEUTICALS, INC.
2008 EQUITY INCENTIVE PLAN

OPTION AGREEMENT
(INCENTIVE STOCK OPTION OR NONSTATUTORY STOCK OPTION)

Pursuant to your Stock Option Grant Notice ("***Grant Notice***") and this Option Agreement, NGM Biopharmaceuticals, Inc. (the "***Company***") has granted you an option under its 2008 Equity Incentive Plan (the "***Plan***") to purchase the number of shares of the Company's Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. Defined terms not explicitly defined in this Option Agreement but defined in the Plan shall have the same definitions as in the Plan.

The details of your option are as follows:

1. VESTING. Subject to the limitations contained herein, your option will vest as provided in your Grant Notice, provided that vesting will cease upon the termination of your Continuous Service.

2. NUMBER OF SHARES AND EXERCISE PRICE. The number of shares of Common Stock subject to your option and your exercise price per share referenced in your Grant Notice may be adjusted from time to time for Capitalization Adjustments.

3. EXERCISE RESTRICTION FOR NON-EXEMPT EMPLOYEES. In the event that you are an Employee eligible for overtime compensation under the Fair Labor Standards Act of 1938, as amended (*i.e.*, a "***Non-Exempt Employee***"), you may not exercise your option until you have completed at least six (6) months of Continuous Service measured from the Date of Grant specified in your Grant Notice, notwithstanding any other provision of your option.

4. EXERCISE PRIOR TO VESTING ("EARLY EXERCISE"). If permitted in your Grant Notice (*i.e.*, the "Exercise Schedule" indicates "Early Exercise Permitted") and subject to the provisions of your option, you may elect at any time that is both (i) during the period of your Continuous Service and (ii) during the term of your option, to exercise all or part of your option, including the nonvested portion of your option; *provided, however,* that:

(a) a partial exercise of your option shall be deemed to cover first vested shares of Common Stock and then the earliest vesting installment of unvested shares of Common Stock;

(b) any shares of Common Stock so purchased from installments that have not vested as of the date of exercise shall be subject to the purchase option in favor of the Company as described in the Company's form of Early Exercise Stock Purchase Agreement;

(c) you shall enter into the Company's form of Early Exercise Stock Purchase Agreement with a vesting schedule that will result in the same vesting as if no early exercise had occurred; and

(d) if your option is an Incentive Stock Option, then, to the extent that the aggregate Fair Market Value (determined at the time of grant) of the shares of Common Stock with respect to which your option plus all other Incentive Stock Options you hold are exercisable for the first time by you during any calendar year (under all plans of the Company and its Affiliates) exceeds one hundred thousand dollars ($100,000), your option(s) or portions thereof that exceed such limit (according to the order in which they were granted) shall be treated as Nonstatutory Stock Options.

5. METHOD OF PAYMENT. Payment of the exercise price is due in full upon exercise of all or any part of your option. You may elect to make payment of the exercise price in cash or by check or in any other manner ***permitted by your Grant Notice,*** which may include one or more of the following:

(a) Provided that at the time of exercise the Common Stock is publicly traded and quoted regularly in *The Wall Street Journal*, pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds.

(b) Provided that at the time of exercise the Common Stock is publicly traded and quoted regularly in *The Wall Street Journal*, by delivery to the Company (either by actual delivery or attestation) of already-owned shares of Common Stock that are owned free and clear of any liens, claims, encumbrances or security interests, and that are valued at Fair Market Value on the date of exercise. Notwithstanding the foregoing, you may not exercise your option by tender to the Company of Common Stock to the extent such tender would violate the provisions of any law, regulation or agreement restricting the redemption of the Company's stock.

6. WHOLE SHARES. You may exercise your option only for whole shares of Common Stock.

7. SECURITIES LAW COMPLIANCE. Notwithstanding anything to the contrary contained herein, you may not exercise your option unless the shares of Common Stock issuable upon such exercise are then registered under the Securities Act or, if such shares of Common Stock are not then so registered, the Company has determined that such exercise and issuance would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations.

8. TERM. You may not exercise your option before the commencement or after the expiration of its term. The term of your option commences on the Date of Grant and expires upon the earliest of the following:

(a) three (3) months after the termination of your Continuous Service for any reason other than Cause or your Disability or death, provided that if during any part of such three (3) month period your option is not exercisable solely because of the condition set forth in the section above relating to "Securities Law Compliance," your option shall not expire until the earlier of the Expiration Date or until it shall have been exercisable for an aggregate period of three (3) months after the termination of your Continuous Service;

(b) twelve (12) months after the termination of your Continuous Service due to your Disability;

(c) eighteen (18) months after your death if you die either during your Continuous Service or within three (3) months after your Continuous Service terminates;

(d) the Expiration Date indicated in your Grant Notice; or

(e) the day before the tenth (10th) anniversary of the Date of Grant.

If your option is an Incentive Stock Option, note that to obtain the federal income tax advantages associated with an Incentive Stock Option, the Code requires that at all times beginning on the date of grant of your option and ending on the day three (3) months before the date of your option's exercise, you must be an employee of the Company or an Affiliate, except in the event of your death or Disability. The Company has provided for extended exercisability of your option under certain circumstances for your benefit but cannot guarantee that your option will necessarily be treated as an Incentive Stock Option if you continue to provide services to the Company or an Affiliate as a Consultant or Director after your employment terminates or if you otherwise exercise your option more than three (3) months after the date your employment with the Company or an Affiliate terminates.

9. EXERCISE.

(a) You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so permits) during its term by delivering a Notice of Exercise (in a form designated by the Company) together with the exercise price to the Secretary of the Company, or to such other person as the Company may designate, during regular business hours, together with such additional documents as the Company may then require.

(b) By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (1) the exercise of your option, (2) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (3) the disposition of shares of Common Stock acquired upon such exercise.

(c) If your option is an Incentive Stock Option, by exercising your option you agree that you will notify the Company in writing within fifteen (15) days after the date of any disposition of any of the shares of the Common Stock issued upon exercise of your option that occurs within two (2) years after the date of your option grant or within one (1) year after such shares of Common Stock are transferred upon exercise of your option.

(d) By exercising your option you agree that you shall not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale, any shares of Common Stock or other securities of the Company held by you, for a period of one hundred eighty (180) days following the effective date of a registration statement of the Company filed under the Securities Act or such longer period as necessary to permit compliance with FINRA Rule 2711 or NYSE Member Rule 472 and similar rules and regulations (the "***Lock-Up Period***"); *provided, however*, that nothing contained in this section shall prevent the exercise of a repurchase option, if any, in favor of the Company during the Lock-Up Period. You further agree to execute and deliver such other agreements as may be reasonably requested by the Company and/or the underwriter(s) that are consistent with the foregoing or that are necessary to give further effect thereto. In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to your shares of Common Stock until the end of such period. The underwriters of the Company's stock are intended third party beneficiaries of this Section 9(d) and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

10. TRANSFERABILITY. Your option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you. Notwithstanding the foregoing, by delivering written notice to the Company, in a form satisfactory to the Company, you may designate a third party who, in the event of your death, shall thereafter be entitled to exercise your option. In addition, if permitted by the Company you may transfer your option to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the option is held in the trust, provided that you and the trustee enter into a transfer and other agreements required by the Company.

11. RIGHT OF FIRST REFUSAL. Shares of Common Stock that you acquire upon exercise of your option are subject to any right of first refusal that may be described in the Company's bylaws in effect at such time the Company elects to exercise its right; *provided, however,* that if your option is an Incentive Stock Option and the right of first refusal described in the Company's bylaws in effect at the time the Company elects to exercise its right is more beneficial to you than the right of first refusal described in the Company's bylaws on the Date of Grant, then the right of first refusal described in the Company's bylaws on the Date of Grant shall apply. The Company's right of first refusal shall expire on the first date upon which any security of the Company is listed (or approved for listing) upon notice of issuance on a national securities exchange or quotation system.

12. RIGHT OF REPURCHASE. To the extent provided in the Company's bylaws in effect at such time the Company elects to exercise its right, the Company shall have the right to repurchase all or any part of the shares of Common Stock you acquire pursuant to the exercise of your option.

13. OPTION NOT A SERVICE CONTRACT. Your option is not an employment or service contract, and nothing in your option shall be deemed to create in any way whatsoever any obligation on your part to continue in the employ of the Company or an Affiliate, or of the Company or an Affiliate to continue your employment. In addition, nothing in your option shall obligate the Company or an Affiliate, their respective stockholders, Boards of Directors, Officers or Employees to continue any relationship that you might have as a Director or Consultant for the Company or an Affiliate.

14. WITHHOLDING OBLIGATIONS.

(a) At the time you exercise your option, in whole or in part, or at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "cashless exercise" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option.

(b) Upon your request and subject to approval by the Company, in its sole discretion, and compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). If the date of determination of any tax withholding obligation is deferred to a date later than the date of exercise of your option, share withholding pursuant to the preceding sentence shall not be permitted unless you make a proper and timely election under Section 83(b) of the Code, covering the aggregate number of shares of Common Stock acquired upon such exercise with respect to which such determination is otherwise deferred, to accelerate the determination of such tax withholding obligation to the date of exercise of your option. Notwithstanding the filing of such election, shares of Common Stock shall be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure shall be your sole responsibility.

(c) You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company shall have no obligation to issue a certificate for such shares of Common Stock or release such shares of Common Stock from any escrow provided for herein unless such obligations are satisfied.

15. NOTICES. Any notices provided for in your option or the Plan shall be given in writing and shall be deemed effectively given upon receipt or, in the case of notices delivered by mail by the Company to you, five (5) days after deposit in the United States mail, postage prepaid, addressed to you at the last address you provided to the Company.

16. GOVERNING PLAN DOCUMENT. Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is further subject to all interpretations, amendments, rules and regulations, which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the provisions of your option and those of the Plan, the provisions of the Plan shall control.

NGM BIOPHARMACEUTICALS, INC.
STOCK OPTION GRANT NOTICE
(2008 EQUITY INCENTIVE PLAN)

NGM Biopharmaceuticals, Inc., (the "***Company***"), pursuant to its 2008 Equity Incentive Plan (the "***Plan***"), hereby grants to Optionholder an option to purchase the number of shares of the Company's Common Stock set forth below. This option is subject to all of the terms and conditions as set forth herein and in the Option Agreement, the Plan, and the Notice of Exercise, all of which are attached hereto and incorporated herein in their entirety.

Optionholder:	_____
Date of Grant:	_____
Vesting Commencement Date:	_____
Number of Shares Subject to Option:	_____
Exercise Price (Per Share):	_____
Total Exercise Price:	_____
Expiration Date:	_____

Type of Grant: ☐ Incentive Stock Option[1] ☐ Nonstatutory Stock Option

Exercise Schedule: ☐ Same as Vesting Schedule ☐ Early Exercise Permitted

Vesting Schedule: 100% of the shares initially subject to the option are initially subject to vesting. On the first (1st) anniversary of the Vesting Start Date (the "Anniversary Date"), 1/4th of the shares subject to the option shall vest; thereafter 1/48th of the shares initially subject to the option shall vest on each month as measured from the Anniversary Date, provided in each case (including on the Anniversary Date) that the optionee is then providing Continuous Service (as defined in the Plan) to the Company.

Payment: By one or a combination of the following items (described in the Option Agreement):

☐ By cash or check
☐ Pursuant to a Regulation T Program if the Shares are publicly traded
☐ By delivery of already-owned shares if the Shares are publicly traded
☐ By net exercise

Additional Terms/Acknowledgements: The undersigned Optionholder acknowledges receipt of, and understands and agrees to, this Stock Option Grant Notice, the Option Agreement and the Plan. Optionholder further acknowledges that as of the Date of Grant, this Stock Option Grant Notice, the Option Agreement, and the Plan set forth the entire understanding between Optionholder and the Company regarding the acquisition of stock in the Company and supersede all prior oral and written agreements on that subject with the exception of (i) options previously granted and delivered to Optionholder under the Plan, and (ii) the following agreements only:

OTHER AGREEMENTS: _____

NGM BIOPHARMACEUTICALS, INC.	**OPTIONHOLDER:**
By: _____	_____
Signature	Signature
Title: _____	Date: _____
Date: _____	

ATTACHMENTS: Option Agreement, 2008 Equity Incentive Plan and Notice of Exercise

[1] If this is an Incentive Stock Option, it (plus other outstanding Incentive Stock Options) cannot be first *exercisable* for more than $100,000 in value (measured by exercise price) in any calendar year. Any excess over $100,000 is a Nonstatutory Stock Option.

ATTACHMENT I

OPTION AGREEMENT

ATTACHMENT II

2008 EQUITY INCENTIVE PLAN

ATTACHMENT III

NOTICE OF EXERCISE

SUBLEASE

THIS SUBLEASE (this "***Sublease***") is made and entered into this 11th day of December, 2015 (the "***Effective Date***"), by and between **AMGEN INC.**, a Delaware Corporation, ("***Sublandlord***") and **NGM BIOPHARMACEUTICALS, INC.**, a Delaware corporation ("***Subtenant***").

RECITALS

A. Sublandlord's predecessor-in-interest, Tularik Inc. ("***Original Tenant***"), entered into that certain Build-to-Suit Lease dated as of December 20, 2001 (the "***Original Master Lease***") with HCP BTC, LLC ("***Master Landlord***"), a Delaware limited liability company, formerly known as Slough BTC, LLC, for the initial lease of three (3) buildings in the Oyster Point center in South San Francisco, California (the "***Center***") and rights to lease additional buildings to be constructed in the Center. The Original Master Lease was subsequently amended on numerous occasions to, among other things, lease additional space and buildings located in the Center to Original Tenant or Sublandlord.

B. Sublandlord and Master Landlord entered into that certain Fifth Amendment to Build-to-Suit Lease and Second Amendment to Workletter dated as of June 19, 2006 (the "***Master Amendment***"), pursuant to which Master Landlord leased to Sublandlord and Sublandlord leased from Master Landlord those certain two (2) buildings in the Center with the addresses of 331 Oyster Point Boulevard, consisting of 128,751 rentable square feet (the "***331 Building***"), and 333 Oyster Point Boulevard, consisting of 121,706 rentable square feet, as more particularly depicted on Exhibit B attached hereto (the "***Premises***" or the "***333 Building***"). The 331 Building and the 333 Building are collectively referred to herein as the "***Buildings***". As used herein, the Original Master Lease, as amended by the Master Amendment only shall be referred to as the "***Master Lease***", a true and correct copy of which is attached as Exhibit A hereto.

C. Sublandlord and Subtenant now desire to provide for a sublease of the Premises, subject to and conditioned upon the terms and conditions set forth herein.

AGREEMENT

NOW, THEREFORE, in consideration of the recitals set forth above, the agreements set forth below and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Sublandlord and Subtenant hereby agree as follows:

1. Sublease of Premises; Access 24/7. Subject and pursuant to the provisions hereof, Sublandlord subleases to Subtenant, and Subtenant subleases from Sublandlord, the Premises. Sublandlord shall deliver the entire Premises to Subtenant with all the current warm shell improvements identified on Exhibit C attached hereto in good working condition and repair (the "***Delivery Condition***") on the date (the "***Delivery Date***") that all of the following have been satisfied: (i) this Sublease has been executed and delivered by Sublandlord and Subtenant, (ii) all consents necessary for the effectiveness of this Sublease have been executed and delivered, including, without limitation, any consents required pursuant to the Master Lease, (iii) Subtenant

has delivered to Sublandlord the Letter of Credit issued by Subtenant's Bank (as defined in Section 12.1 below) and meeting the criteria set forth in Section 12; and (iv) Subtenant has delivered to Sublandlord written evidence that Subtenant carries the insurance required to be carried as set forth in Section 9.15 of this Sublease. Notwithstanding anything to the contrary contained in this Sublease, in the event that clause (ii) above shall not have been satisfied by the date that is thirty days after the Effective Date (the "**Consent Deadline**"), for any reason other than a Subtenant Delay (defined below), Subtenant may terminate this Sublease by written notice to Sublandlord delivered within ten (10) business days after the Consent Deadline, Sublandlord shall then return the Letter of Credit and all sums deposited by Subtenant and the parties shall have no further obligations under this Sublease. A "**Subtenant Delay**" shall mean an actual delay caused or requested by Subtenant or its agents, employees or contractors.

Subject to the terms of the Master Lease, Subtenant shall have access to the Premises 24 hours per day, seven days a week, 52 weeks per year.

2. Term; Rent Commencement Date; Early Access.

2.1 Term; Phased Occupancy. The term (the "**Term**") of this Sublease shall commence upon the date (the "***Commencement Date***") that this Sublease has been mutually executed and delivered, and all necessary consents to this Sublease have been obtained (including, without limitation any consents required pursuant to the Master Lease) and shall continue until December 31, 2023 (the "**Expiration Date**"), unless sooner terminated pursuant to the provisions of this Sublease. Although the Subtenant intends to do the initial build-out in both Phases (as defined below) at the same time, Subtenant shall occupy the Premises in two (2) successive phases (each a "**Phase**" and collectively, the "**Phases**"). The first such phase (the "**First Phase**") shall include approximately 91,238 rentable square feet in the 333 Building, consisting of the entire 1st, 3rd and 4th floors. The second such phase (the "**Second Phase**") shall consist of an additional 30,468 rentable square feet on the 2nd Floor of the 333 Building. Both Phases together comprise the entire 333 Building, which is the Premises hereunder. The obligations to pay Rent (as defined in Section 3.3.5 below) for each Phase shall commence upon the respective rent commencement date for such Phase as described in Section 2.2 below, and shall continue throughout the Term. The above measurements were made by Master Landlord's architect pursuant to Section 1.1(d) of the Original Master Lease, which Section 1.1(d) is incorporated herein by reference solely for purposes of acknowledging how the Premises were measured.

2.2 Rent Commencement. The rent commencement dates for the respective Phases shall be as follows:

2.2.1 First Phase Rent Commencement Date. Subtenant's Base Rent and Operating Expense obligations with respect to the First Phase shall commence on the earlier to occur of (a) the date Subtenant takes occupancy of and commences to conduct business in any portion of First Phase of the Premises, or (b) July 1, 2016 (such earlier date, the "***First Phase Rent Commencement Date***").

2.2.2 Second Phase Rent Commencement Date. Subtenant's Base Rent and Operating Expense obligations with respect to the Second Phase shall commence on the earlier to occur of (a) the date Subtenant takes occupancy of and commences to conduct business in any portion of the Second Phase of the Premises, or (b) July 1, 2018, the earlier of such dates being herein called the "***Second Phase Rent Commencement Date***".

2.2.3 Delay in Delivery Date. If all consents necessary for the effectiveness of this Sublease have not been executed and delivered by the Consent Deadline, including, without limitation, any consents required pursuant to the Master Lease, and should Subtenant choose not to terminate the lease in accordance with Section 1 herein, then the July 1, 2016 date in Section 2.2.1 and the July 1, 2018 date in Section 2.2.2 above, shall each be extended on a day for day basis for each day of delay past the Consent Deadline.

2.2.4 Sublandlord Delay. Subtenant estimates that it will complete the construction of the Subtenant Improvements (defined in Section 10.4.1) for the entire Premises by October 1, 2016 (the "***Estimated Completion Date***"). If Subtenant is delayed in completing the Subtenant Improvements beyond the Estimated Completion Date due to a Sublandlord Delay (defined below), the First Phase Rent Commencement Date or the Second Phase Commencement Date (as applicable), shall extend one day for each day of Sublandlord Delay (it being acknowledged that if the Sublandlord Delay actually delays construction of the Subtenant Improvements for both Phases, then both dates shall extend). As used herein, a "**Sublandlord Delay**" means an actual delay in construction of the Subtenant Improvements caused by (i) Sublandlord's failure to review and respond to Subtenant's requests for review and approval of Subtenant's plans and specifications within the time periods specified for such review and approval in the Subtenant Work Letter (defined in Section 10.4.1 below), (ii) Sublandlord's failure to deliver the Premises in the Delivery Condition on the Delivery Date, or (iii) other acts or omissions of Sublandlord, which are not cured within two (2) business days of written notice from Subtenant that such acts or omissions are delaying or will delay completion of the Subtenant Improvements. Any delay in completing the Subtenant Improvements caused by Master Landlord shall not be a Sublandlord Delay and shall not result in an adjustment to the Rent Commencement Dates.

2.2.5 Confirmation of Dates. Following the request of either party, the parties agree to execute and deliver a factually-correct written confirmation documenting the Commencement Date, the First Phase Rent Commencement Date, the Second Phase Rent Commencement Date and the Expiration Date.

2.3 Utilities and Maintenance. From and after the Delivery Date, Subtenant shall be solely responsible to obtain and pay for all utilities provided to the Premises. In addition, subject to Sublandlord's obligations set forth in Section 8 hereof, Subtenant shall be solely responsible for maintenance and repair of the building systems serving the Premises commencing on the Delivery Date, provided, that, Subtenant shall not be obligated to pay its share of Operating Expenses with respect to a given Phase of the Premises until the applicable Rent Commencement Date for such Phase.

3. Rent.

3.1 Base Rent. Commencing on the First Phase Rent Commencement Date, which shall be deemed to be the first day of Month 1 in the table below, Subtenant shall pay as monthly base rent for the Premises ("***Base Rent***") an amount equal to the aggregate square footage of all then applicable Phases multiplied by the applicable Base Rental Rate per rentable square foot per month set forth in the following table:

Months	Monthly Base Rental Rate
1-12*	$3.08 – NNN*
13-24	$3.17 – NNN
25-36	$3.27 – NNN
37-48	$3.37 – NNN
49-60	$3.47 – NNN
61-72	$3.57 – NNN
73-84	$3.68 – NNN
85-Expiration Date	$3.79 – NNN

* Base Rent for the first three (3) full calendar months after the First Phase Rent Commencement Date shall be abated, subject to and in accordance with the terms and conditions of Section 3.2 of this Sublease.

For the avoidance of doubt, (i) Subtenant's Base Rent from the First Phase Rent Commencement Date to the Second Phase Rent Commencement date will be calculated based on the measurement of the First Phase portion of the Premises, (ii) Subtenant's Base Rent from and after the Second Phase Rent Commencement Date will be calculated based on the entire Premises, and (iii) both Phases shall be subject to annual increases in Base Rent coinciding with the anniversary date of the First Phase Rent Commencement Date. Base Rent and additional rent shall be paid to Sublandlord without demand, deduction, set-off or counterclaim, in advance on the first day of each calendar month during the Term of this Sublease, and in the event of a partial rental month, Base Rent shall be prorated on the basis of the number of actual days in such month. All payments due to Sublandlord shall be paid to Sublandlord c/o Amgen Inc., Accounts Payable, PO Box 100909, Pasadena, CA, 91189-0909 or such other address as Sublandlord may specify in a written notice delivered pursuant to Section 10.1, below.

3.2 Base Rent Abatement. Notwithstanding anything to the contrary contained herein and provided that Subtenant faithfully performs all of the terms and conditions of this Sublease, and no default by Subtenant occurs hereunder, Sublandlord hereby agrees that Subtenant shall not be required to pay the monthly installments of Base Rent for the first three (3) full calendar months following the First Phase Rent Commencement Date (the "***Abatement Period***"). During the Abatement Period, Subtenant shall still be responsible for the payment of all of its other monetary obligations under this Lease, including without limitation, Operating Expenses. In the event of a default by Subtenant under the terms of this Sublease that results in termination of this Sublease in accordance with the terms hereof, Sublandlord shall be entitled to recovery of the then-unamortized portion of the Base Rent that was abated under the provisions of this Section 3.2.

3.3 Operating Costs And Expenses.

3.3.1 Payment; Annual Statement of Operating Expenses. Commencing on the First Phase Rent Commencement Date and continuing to the Second Phase Rent Commencement Date, Subtenant shall pay to Sublandlord, as additional rent hereunder, 75% (which is agreed to be the percentage of the Premises that Subtenant will occupy during the First Phase) of the Operating Expenses (as defined in Section 9.2 of the Original Master Lease), allocated to the Premises under the Master Lease (including, without limitation, Article 9 of the Original Master Lease and Section 1(e) of the Master Amendment). From and after the Second Phase Rent Commencement Date, Subtenant shall pay to Sublandlord, as additional rent hereunder, all of the Operating Expenses allocated to the Premises under the Master Lease (as amended by the Master Amendment). All Operating Expenses shall be payable in advance on the first day of each calendar month during the Term of this Sublease in accordance with Section 9.3 of the Original Master Lease. Sublandlord shall provide Subtenant with a copy of Master Landlord's annual statement of Operating Expenses (as applicable to the Premises) promptly after Sublandlord's receipt of such annual statement. Sublandlord agrees that Subtenant shall be entitled to audit rights with respect to Sublandlord's books and records relating to the determination and payment of Operating Expenses related to the Premises for the immediately preceding Lease Year. Subject to the Incorporation Provisions (defined below), the provisions of Article 9 of the Original Master Lease (as amended by the Master Amendment) are incorporated herein only to the extent specifically referenced in this Sublease. Further, Subtenant acknowledges and agrees that, although Article 9 of the Original Master Lease is not otherwise specifically incorporated into this Sublease, Article 9 of the Original Master Lease (as amended by Section 1(e) of the Master Amendment) governs and controls for all purposes the determination of Operating Expenses payable by Sublandlord that Sublandlord is passing through to Subtenant in accordance with the terms of this Section 3.3.

3.3.2 Pro-ration. If the Term shall commence on any day other than January 1 or expire or earlier terminate on any date other than December 31, Subtenant's obligations under Section 3.3.1 for such first or last partial calendar year shall be prorated on the basis of the number of days elapsed during such calendar years in which this Sublease is in effect bears to 365. In the event that the Term shall expire or earlier terminate on any date other than December 31, for purposes of Section 3.3.1, Sublandlord may either reasonably project, as of the date of such expiration or termination, the Operating Expenses for such calendar year and bill Subtenant for Subtenant's share thereof at any time thereafter or wait until receipt of Master Landlord's calculation thereof for the entire calendar year in question and bill Subtenant for Subtenant's share of Subtenant's share thereof at any time thereafter; provided, however, if Sublandlord reasonably projects the amount of such Operating Expenses, Sublandlord shall reconcile such projection with the actual Operating Expenses due following the receipt of the actual annual statement of Operating Expenses for such calendar year and shall follow the terms of Section 9.4(a) of the Original Master Lease with respect to the amounts owed or to be reimbursed.

If the obligation to pay any component of Rent under this Sublease commences on other than the first day of a calendar month, or if the Term of this Sublease terminates on a day other than the last day of a calendar month, the Rent for such first or last month of the Term shall be prorated based on the number of days during the Term of this Sublease is in effect during such month. If an increase in Rent becomes effective on other than the first day of a calendar month, the Rent payable for month shall be the sum of the two applicable rates, each prorated for the portion of the month during which such rate is in effect.

3.3.3 Annual Reconciliation; Accounting; Audit Rights. Because the Master Lease provides for the payment by Sublandlord of Operating Expenses on the basis of an estimate thereof, as and when adjustments between estimated and actual Operating Expenses are made under the Master Lease, as applicable, the obligations of Sublandlord and Subtenant hereunder shall be adjusted in a like manner; and if any such adjustment shall occur after the expiration or earlier termination of the Term, then the obligations of Sublandlord and Subtenant under this Section 3 shall survive such expiration or termination. Within thirty (30) days after Sublandlord receives from the Master Landlord the annual statement of actual Operating Expenses incurred by Master Landlord (the "***Accounting***"), Sublandlord shall provide Subtenant an accounting of the actual Operating Expenses payable with respect to the Premises as reflected in the Accounting. In the event that the Accounting shows that Subtenant paid more or less than the actual Operating Expenses payable by Subtenant hereunder, then Subtenant shall either promptly receive a credit against future Rent (or such amount shall be paid to Subtenant if the Term has expired or been terminated) or shall be required to pay to Sublandlord the deficient amount within thirty (30) days after Subtenant's receipt of such Accounting.

Sublandlord shall use commercially reasonable efforts to include in the Consent Master Landlord's agreement that Subtenant may exercise directly the Sublandlord's rights as Tenant under Section 9.4(b) of the Original Master Lease to examine Master Landlord's books and records, provided, that, (i) Sublandlord's rights to audit Operating Expenses under the Master Lease are not affected or limited thereby, and (ii) in no event will Subtenant be entitled to a reduction of Operating Expenses with respect to the Premises if Sublandlord is obligated to pay such Operating Expenses. If Master Landlord does not so agree, then Sublandlord, shall, upon the written request of Subtenant and at Subtenant's sole cost and expense, exercise such right (subject to, and in accordance with, the terms of the Master Lease), to confirm the accuracy of the Operating Expenses identified in the annual statement provided by Master Landlord as payable with respect to the Premises. In such event, Sublandlord shall promptly deliver the results of such examination to Subtenant, and shall reasonably cooperate with Subtenant and Master Landlord to resolve any outstanding issues or concerns in accordance with the terms of the Master Lease.

Subject to the foregoing, any and all amounts paid by Sublandlord under the Master Lease for Operating Expenses, real estate taxes or assessments, and other charges with respect to the Premises shall be conclusively deemed to be accurate and binding upon Subtenant for purposes of interpretation of this Section 3.

3.3.4 Payment of Extra Charges. In addition to the amounts payable under Section 3.3.1, Subtenant shall pay to Sublandlord within ten (10) days of Subtenant's receipt of Sublandlord's written invoice therefor: (i) any charges, costs, fees or expenses for which Sublandlord is separately charged under the Master Lease (and which are not part of Operating Expenses) and which are attributable to the Premises, including, without limitation, personal property taxes and excess electrical consumption charges (if any); (ii) any and all other sums of money (other than those attributable to Operating Expenses and the charges, costs, fees or expenses covered by clause (i) above) which are or may become payable by

Sublandlord to Master Landlord relating to the Premises; (iii) any real property taxes and assessments related to the Premises that are separately billed to Sublandlord; and (iv) any and all charges of Master Landlord or other amounts payable to Master Landlord under the Master Lease caused by Subtenant's failure to perform its obligations under this Sublease.

3.3.5 "Rent" Definition. All forms of additional rent and any other amounts payable by Subtenant to Sublandlord shall be payable by Subtenant without notice (except as expressly provided to the contrary herein), demand, deduction, offset or abatement in lawful money of the United States to Sublandlord at such places and to such persons as Sublandlord may direct. All such amounts, together with Base Rent, are collectively referred to herein as "***Rent.***"

3.3.6 Interest and Late Charges. Subject to the Incorporation Provisions (defined below), Section 3.2 of the Original Master Lease is hereby incorporated by reference. Any interest and late charges accrued under this Section shall be deemed to be additional rent payable hereunder.

3.4 Free Rent Period. As set forth above, Subtenant shall have no obligation to pay Base Rent or Operating Expenses during the period from the Commencement Date to the applicable Rent Commencement Date (the "***Free Rent Period***"). However, Subtenant shall pay for all utilities provided to the Premises (power, water/sewer service, and gas service, if applicable) in accordance with Article 10 of the Original Master Lease (incorporated herein as set forth below) and, except as specifically set forth in this Section 3.4, all other terms and conditions of this Sublease shall apply and Subtenant shall remain responsible for the payment of all other monetary obligations under the Sublease during the Free Rent Period.

4. Use. Subtenant shall use and occupy the Premises only for the purposes set forth in Section 13.1 of the Original Master Lease and for no other purpose. Without limiting the generality of the foregoing, Subtenant shall comply with all applicable laws, including without limitation, laws governing hazardous materials, in connection with Subtenant's use and occupancy of the Premises. Further, Subtenant shall comply with all environmental obligations under the Master Lease, including without limitation, obligations relating to decommissioning of laboratories prior to the end of the Term. Notwithstanding the foregoing, Subtenant shall not be responsible for any environmental conditions existing at the Premises in violation of the Master Lease as of the date of this Sublease.

5. Parking.

5.1 Spaces. Subject to the provisions of this Section 5, Subtenant shall have the parking rights as Sublandlord has with respect to the Premises under the Master Lease (the "***Parking Spaces***") during the Term, including, without limitation, as set forth in Section 21.20 of the Original Master Lease and Section 1(g) of the Master Amendment. Subject to the Master Lease and Subtenant obtaining Master Landlord's consent thereto, Subtenant shall be entitled to allocate up to ten (10) of the Parking Spaces allocated to the Premises under the Master Lease to dedicated visitor parking spaces in front of the Premises. Sublandlord shall not take any action to cause Master Landlord to reduce Sublandlord's parking rights with respect to the Premises under the Master Lease. All Parking Spaces are unassigned and nonexclusive spaces, and

notwithstanding any provision herein or in the Master Lease to the contrary, shall be provided to Subtenant at no cost or expense, except for expenses included in Operating Expenses pursuant to (i) Section 9.2(a)(vi) of the Master Lease, or (ii) the second to last sentence of Section 9.2(b) of the Master Lease.

5.2 Compliance. Subtenant shall comply (and cause each of its employees, contractors, representatives, and invitees using such privileges to strictly comply) with all rules, regulations and requirements of Master Landlord with respect to use of the Parking Spaces, the Transportation Demand Management Plan (TDMP) and other matters relating thereto.

6. Additional Rights.

6.1 Signage. Subtenant shall have the right to signage as set forth in Section 11.5 of the Original Master Lease on, or otherwise specifically allocated to, the 333 Building. All signage of Subtenant shall (i) be subject to the terms of the Master Lease, Sublandlord's reasonable approval and Master Landlord's approval as to design, composition, size and location, and (ii) be undertaken at Subtenant's sole cost and expense, including, without limitation, all costs of installation, maintenance, repair, restoration and removal. Not by way of limitation of the foregoing, Sublandlord acknowledges that Subtenant desires maximum Building signage and agrees that, so long as (A) such signage is limited to identifying signage with Subtenant's name and/or logo, and (B) Master Landlord approves such signage, Sublandlord shall approve such signage.

6.2 Generator. Subtenant has informed Sublandlord that Subtenant wishes to use the existing 1 megawatt emergency backup generator (the "***Generator***") which is currently in place on a pad adjacent to the 333 Building (the "***Generator Area***"). Sublandlord agrees that Subtenant shall be entitled to use and operate the Generator to provide emergency backup power to the Premises, so long as Subtenant obtains its own permits to use and operate the Generator (releasing Sublandlord from any liability with respect to the Generator) and complies with the terms of this Section 6.2. The Generator will be delivered to Subtenant in its current "***AS IS***" condition. Subtenant and its authorized personnel shall further have the right to access the Generator Area for purposes of testing, maintaining, refueling, repairing and operating the Generator, subject to force majeure and in compliance with any Master Landlord rules and regulations. Subject to Sublandlord's obligations set forth in Section 8 hereof, Subtenant shall maintain and operate the Generator in compliance with all applicable federal, state and local laws, rules and regulations, including, without limitation, obtaining and maintaining at Subtenant's sole cost and expense all permits, certificates or other authorizations required for operation of the Generator, such as to comply with requirements of applicable zoning restrictions, City and County requirements and regulations of any governing air quality or environmental management district. Subtenant shall be solely responsible to insure that the Generator is operated in compliance with applicable laws, rules and regulations and the terms of the Master Lease and any governing CC&Rs, and to insure that the Generator does not interfere with the business operations or quiet enjoyment of other tenants or occupants of the Center. Without limiting the indemnity set forth in Section 11.2 below, Subtenant hereby indemnifies, defends and hold Sublandlord harmless from and against any costs, losses, damages, liability or harm caused by or resulting from Subtenant's use and operation of the Generator. Only if required by Master Landlord in accordance with the

Master Lease, Subtenant shall remove the Generator upon expiration or earlier termination of this Sublease and repair any damage caused by such removal. If required by the terms of applicable laws, rules or regulations, Subtenant will obtain at its cost and deliver to Sublandlord a copy of any closure or similar report issued by any governmental authority with respect to Subtenant's cessation of use and removal of the Generator.

6.3 Other Permits. Subtenant will be responsible for obtaining its own permits with respect to any new or existing building systems which require permits for operation or occupancy, including without limitation, elevator permits, certificates of occupancy, and fire protection system permits.

7. Broker Commissions. Each party represents and warrants that it has dealt with no broker in connection with this Sublease and the transactions contemplated herein, except that Sublandlord has been represented by Kidder Matthews ("**Primary Broker**") and Binswanger ("**Co-Broker**"), and Subtenant has been represented by Jones Lang LaSalle ("**Secondary Broker**"). Following full execution and delivery of this Sublease and the Consent, Sublandlord shall pay the commission payable to the Primary Broker as a result of this Sublease ("**Commission**") pursuant to the terms of a separate agreement between the Primary Broker and Sublandlord. It is Sublandlord's and Subtenant's understanding that the Primary Broker will share the Commission with the Co-Broker and the Secondary Broker pursuant to a separate agreement amongst such brokers. Each party shall indemnify, defend and hold the other party free and harmless from and against any claim, loss, damage, liability, obligation, cost or expense, including attorneys' fees suffered, incurred or asserted arising from the breach of the representation and warranty set forth in this Section 7. Under no circumstances will the Primary Broker, the Co-Broker, the Secondary Broker, or any other broker or agent be deemed a third party beneficiary of this Sublease.

8. Condition Of Premises. Subject to Sublandlord's obligation to deliver the Premises to Tenant in the Delivery Condition as set forth above in Section 1, Subtenant has inspected the Premises and all improvements located therein, and has agreed to accept the Premises in their "***AS-IS***" condition, existing as of the date of this Sublease, and subject to all applicable municipal, county, state and federal laws, ordinances and regulations governing and regulating the use and occupancy of the Premises. Notwithstanding the foregoing, if it is determined that the Premises were not in the Delivery Condition on the Delivery Date, Sublandlord shall, as Subtenant's sole remedy hereunder, promptly take such steps as are necessary to cause the Premises to be in the Delivery Condition as soon as reasonably possible after receiving notice thereof from Subtenant at no cost to Subtenant (through Operating Expenses or otherwise), *provided*, *that*, (i) Subtenant delivers written notice to Sublandlord detailing such deficiency by no later than the date that is five (5) months after the Delivery Date (time being of the essence), (ii) the failure of the Premises to be in the Delivery Condition was not directly caused by work performed or modifications made by Subtenant or its agents, employees or contractors to the Premises., and (iii) the failure of the Premises to be in the Delivery Condition is not due to the failure of the Master Landlord to perform any obligations of Master Landlord under the Master Lease (in which event, Sublandlord's obligations with respect to such deficiency shall be limited to the obligations set forth in Section 9.1.1 below). The Premises has not undergone inspection by a Certified Access Specialist (CASp).

9. Master Lease.

9.1 Compliance With The Master Lease. The terms of this Section 9.1 (including, without limitation, subsections 9.1.1, and 9.1.2 below) shall govern incorporation of any provisions into the Sublease and such provisions are collectively referred to herein as the "**Incorporation Provisions**." Subtenant shall not cause a breach of the Master Lease, as more particularly set forth in Section 9.1.3 below. Except as otherwise expressly provided hereunder, or as the context of this Sublease directly indicates otherwise, all of the rights and obligations imposed on the "Tenant" under the Master Lease with respect to the Premises are hereby imposed on Subtenant and all of the rights granted to the "Landlord" under the Master Lease with respect to the Premises are hereby granted hereunder to Sublandlord. All of the terms and conditions contained in the Master Lease are incorporated herein, except as specifically provided below, and shall together with the terms and conditions specifically set forth in this Sublease constitute the complete terms and conditions of this Sublease. To the extent the Master Lease terms are incorporated herein, the following defined terms in the Master Lease shall be deemed to have the respective meanings set forth below for purposes of this Sublease:

Defined Term in Master Lease	Definition Under This Sublease
Building(s)	Building(s) (as defined herein)
Landlord	Sublandlord (as defined herein)
Lease	Sublease (as defined herein)
Minimum Rental	Base Rent (as defined herein)
Phase II Building(s)	Building(s) (as defined herein)
Phase II Rent Commencement Date	The applicable Rent Commencement Date (as defined herein)
Property	The Phase II site shown on the Phase II Site Plan attached to the Master Amendment as Exhibit A.
Rent Commencement Date	The applicable Rent Commencement Date (as defined herein)
Tenant	Subtenant (as defined herein)
Tenant Improvement Allowance	Subtenant Improvement Allowance (as defined herein)
Tenant Improvements	Subtenant Improvements
Workletter	Subtenant Work Letter

Subtenant acknowledges that it has read the attached copy of the Master Lease and agrees that this Sublease is in all respects subject and subordinate to any mortgage, deed, deed of trust, ground lease or other instrument now or hereafter encumbering the Premises or the land on which it is located, to the terms and conditions of the Master Lease and to the matters to which the Master Lease, including any amendments thereto, is or shall be subordinate.

Notwithstanding anything to the contrary set forth herein:

9.1.1 Sublandlord Has No Duty to Perform Master Landlord's Obligations. Sublandlord shall have no duty to perform any obligations of Master Landlord which are, by their nature, the obligation of an owner or manager of real property. For example, Sublandlord shall not be required to (i) provide services, utilities, repairs, maintenance or other tasks which the Master Landlord is required to provide under the Master Lease, (ii)

construct any improvements, (iii) procure or maintain the insurance which the Master Landlord is required to procure and maintain under the Master Lease, (iv) develop or implement the Transportation Demand Management Plan (as defined in the Master Lease) or perform its related obligations and activities, or (v) provide any non-disturbance protection in connection with any mortgage, deed, deed of trust, ground lease or other instrument now or hereafter encumbering the Premises. The parties contemplate that Master Landlord will perform such obligations under the Master Lease to the extent required therein and in the event of any default or failure of such performance by Master Landlord, Sublandlord agrees that it will, upon written notice from Subtenant detailing the nature of such failure, make demand upon Master Landlord to perform its obligations under the Master Lease and take appropriate action as reasonably requested by Subtenant to enforce the Master Lease. Except as specifically provided in Section 13 below, under no circumstances shall Subtenant be entitled to any free rent period, construction allowance, tenant improvements, or any other such economic incentives provided to Sublandlord as set forth in the Master Lease.

9.1.2 Time Periods for Performance; Approvals by Both Master Landlord and Sublandlord. Whenever any provision of the Master Lease specifies a time period in connection with the performance of any liability or obligation by Subtenant or any notice period or other time condition to the exercise of any right or remedy by Sublandlord hereunder, such time period shall be shortened in each instance by three (3) business days for the purposes of incorporation into this Sublease, but in no case shall such period be less than three (3) days or the actual time period for performance set forth in the Master Lease, if shorter. Any default notice or other notice of any obligations (including any billing or invoice for any rent or any other expense or charge due under the Master Lease) from Master Landlord which is received by Subtenant (whether directly or as a result of being forwarded by Sublandlord) shall constitute such notice from Sublandlord to Subtenant under this Sublease without the need for any additional notice from Sublandlord. Whenever any provision of the Master Lease requires Subtenant to pay the costs and expenses of "Landlord," Subtenant shall pay both the costs and expenses of Master Landlord and the reasonable costs and expenses of Sublandlord, unless such costs and expenses are incurred as a result of a breach of the Master Lease or this Sublease by Sublandlord, and such breach or default was not caused by Subtenant. Whenever any provision of the Master Lease requires Subtenant to submit evidence, certificates or other documents or materials, Subtenant shall submit such items to both Sublandlord and Master Landlord, and whenever any provision of the Master Lease requires Subtenant to obtain the approval or consent of "***Landlord,***" Subtenant shall be required to obtain the approval or consent of both Sublandlord and Master Landlord. In the event of a conflict between the express provisions of this Sublease and the incorporated provisions of the Master Lease, as between Sublandlord and Subtenant, the express provisions of this Sublease shall control.

9.1.3 Subtenant Shall Not Cause a Breach of Master Lease. Subtenant shall not do, permit or suffer any act, occurrence or omission which if done, permitted or suffered by Sublandlord would be (with notice, the passage of time or both) in violation of or a default by the "Tenant" under the Master Lease or could lead in any respect to the termination of the Master Lease. If Subtenant shall default in the performance of any of its obligations under this Sublease, other than its obligation to pay rent to Sublandlord, Sublandlord, without being under any obligation to do so and without thereby waiving such default, may remedy such default for the

account and at the expense of Subtenant, without notice in a case of emergency and, in all other cases, if the default continues after five (5) business days from the date of written notice thereof from Sublandlord. Subtenant shall defend, indemnify and hold Sublandlord harmless from all claims, costs and liabilities, including reasonable attorneys' fees and costs, arising out of or in connection with any acts or failures to act by Subtenant, or its agents, employees or contractors that causes Sublandlord to be in a default under the Master Lease or otherwise increases Sublandlord's liability or responsibilities under the Master Lease.

9.1.4 Sublandlord Shall Not Cause a Breach of the Master Lease, and Shall Not Extend. So long as Subtenant is not in default under this Sublease beyond the expiration of any applicable notice and cure periods, Sublandlord shall perform all Sublandlord's covenants, agreements, terms, provisions or conditions set forth in the Master Lease (except to the extent they are the obligation of Subtenant hereunder or are the result of a default by Subtenant hereunder), including without limitation, the payment of rent and all other sums payable by Sublandlord thereunder. Sublandlord further agrees that Sublandlord will not exercise any extension options it may have to extend the term of the Master Lease with respect to the 333 Building to enable Subtenant to negotiate a direct lease with Master Landlord, at Subtenant's election.

9.2 Excluded Provisions. Notwithstanding any provision of this Sublease to the contrary, the following provisions of the Master Lease shall not be incorporated into this Sublease:

Provisions in the Original Master Lease

- Section 1.1(a), except for the definitions of "Improvements" and "Common Areas"
- Section 1.1(c)
- Section 1.2, except as referenced in Section 9.8 of this Sublease.
- Sections 2.1 through 2.6
- Section 3.1(a) through (e)
- Section 5.1
- Section 5.2
- Section 5.3
- Article 6
- Section 9.1 through 9.5, except as referenced in Section 3.3 above
- Unless otherwise agreed by Master Landlord in the Consent, the last portion of the first sentence in Section 11.1 beginning with "except that Tenant shall not be required…"
- The fifth sentence of Section 11.2, beginning with "Tenant shall also be responsible…"
- Section 12.1(b)
- The second sentence of Section 12.2(c)
- Section 14.6
- The second sentence and parenthetical third sentence of Section 19.1
- Article 20

- Section 21.1, except as referenced in Section 10.1 of this Sublease.
- Section 21.2
- Section 21.3
- Section 21.5
- Section 21.8
- Section 21.9
- Section 21.15
- Section 21.16
- Section 21.17
- Section 21.18
- Section 21.19
- The fourth sentence (which begins with "The monthly fee") and the last parenthetical sentence of Section 21.20(b)
- Exhibits A, B, C, D and E (in each case except to the extent expressly referenced in any portion of the Master Lease affirmatively incorporated herein)

Provisions in the Master Amendment

- Recitals
- Sections 1(a) through (d), including the paragraph that precedes (a)
- Section 1(e), except as referenced in Section 3.3 of this Sublease.
- Section 1(f)
- Clause (ii) of Section 1(g)
- Unless otherwise agreed by Master Landlord in the Consent, Section 1(h)
- The second, third and fourth sentences of Section 2
- The first sentence of Section 2(b)
- Section 2(a)
- Section 2(c)
- Section 2(d)
- Sections 3 through 4
- The sixth (6th) and seventh (7th) sentences of Section 5
- Sections 6 through 8
- Exhibit B
- Schedule C-1
- Schedule C-2

9.3 Inapplicable Amendments. In addition to the foregoing, Sublandlord confirms that the following amendments to the Original Master Lease are inapplicable to the Premises and are not part of the Master Lease for purposes of this Sublease:

(a) First Amendment to Build-to-Suit Lease dated January 22, 2003;

(b) Second Amendment to Build-to-Suit Lease dated March 26, 2004;

(c) Third Amendment to Build-to-Suit Lease dated August 12, 2004;

(d) Fourth Amendment to Build-to-Suit Lease and First Amendment to Workletter dated June 19, 2006;

(e) Sixth Amendment to Build-to-Suit Lease and Third Amendment to Workletter dated November 21, 2006; and

(f) Seventh Amendment to Build-to-Suit Lease and Fourth Amendment to Workletter dated February 21, 2008.

9.4 Default And/Or Termination Of Master Lease. If for any reason the term of the Master Lease is terminated prior to the Expiration Date of this Sublease, this Sublease shall thereupon terminate and, unless such termination was caused by Sublandlord's breach of its obligations under Section 9.1.4 above, which was not caused by Subtenant, Sublandlord shall not be liable to Subtenant by reason thereof for damages or otherwise, except that Sublandlord shall return to Subtenant that portion of any rent paid in advance by Subtenant, if any, which is applicable to the period following the date of such termination; provided, however, Sublandlord agrees that so long as Subtenant is not in default after the expiration of applicable notice and cure periods hereunder and except in the event of a casualty or condemnation in which Sublandlord has the right to terminate the Lease, Sublandlord shall have no right to voluntarily terminate the Master Lease with respect to the Premises without Subtenant's consent, in its sole discretion, unless Master Landlord agrees to recognize this Sublease as a direct agreement with Subtenant upon substantially the same terms set forth in this Sublease, or Subtenant otherwise has the right to continue to occupy the Premises pursuant to a direct agreement with Master Landlord upon terms satisfactory to Subtenant, in its reasonable discretion. Nothing herein shall prevent Sublandlord from terminating the Master Lease with respect to spaces other than the Premises leased by Sublandlord thereunder.

9.5 Holding Over. If Subtenant holds possession of the Premises or any portion thereof after the expiration or earlier termination of this Sublease, then Subtenant shall become a tenant at sufferance only, at a sublease base rental rate equal to one hundred fifty percent (150%) of the Base Rent in effect upon the date of such expiration or termination, plus all additional rent payable by Subtenant hereunder (pro-rated on a daily basis). Acceptance by Sublandlord of rent after such expiration or termination date shall not result in a renewal of this Sublease and shall not waive or modify Sublandlord's rights to pursue any and all legal remedies available to Sublandlord under applicable law with respect to such holding over by Subtenant. It is acknowledged that if Subtenant holds over after the expiration or earlier termination of this Sublease, Sublandlord may be subject to holdover rent with respect to the Premises under the Master Lease. Accordingly, (i) Sublandlord expressly reserves the right to require Subtenant to surrender possession of the Premises upon the expiration of the Term or upon the earlier termination hereof and the right to assert any remedy at law or in equity to evict Subtenant and/or collect damages in connection with any such holding over, and (ii) Subtenant shall indemnify, defend and hold Sublandlord harmless from and against any and all claims, demands, actions, losses, damages, obligations, costs and expenses, including, without limitation, attorneys' fees

incurred or suffered by Sublandlord by reason of Subtenant's failure to surrender the Premises on the expiration or earlier termination of this Sublease in accordance with the provisions of this Sublease (including, without limitation, the cost of all rent payable by Sublandlord with respect to the Premises under the Master Lease caused by or resulting from Subtenant's holdover). Notwithstanding the foregoing, Subtenant shall be entitled to make separate arrangements with Master Landlord permitting Subtenant to remain in the Premises after expiration of the Term, provided, that, (a) Sublandlord is released from its obligation to surrender the Premises to Master Landlord under the terms of the Master Lease, and (b) the Master Lease terminates with respect to the Premises for all purposes on the Expiration Date.

9.6 Compliance with Law. Subtenant warrants to Sublandlord that the Subtenant Improvements (as defined below) and any other improvements constructed by Subtenant from time to time shall not violate any applicable law, building code, regulations or ordinance in effect on the applicable Rent Commencement Date or at the time such improvements are placed in service. If it is determined that such warranty has been violated, then Subtenant shall, upon written notice from Sublandlord, promptly correct such violation, at Subtenant's sole cost and expense Subtenant acknowledges that neither Sublandlord nor any agent of Sublandlord has made any representation or warranty as to the present of future suitability of the Premises for the conduct of Subtenant's business or proposed business therein.

9.7 Definitions. Subject to the Incorporation Provisions, the definitions of "**Improvements**" and "**Common Areas**" set forth in Section 1.1(a) of the Original Master Lease are hereby incorporated by reference.

9.8 Use of Common Areas. Subject to the Incorporation Provisions, Section 1.1(b) of the Original Master Lease is hereby incorporated by reference. Subtenant acknowledges Master Landlord's reserved rights set forth in Section 1.2 of the Original Master Lease.

9.9 Personal Property. Subject to the Incorporation Provisions, Section 8.1 of the Original Master Lease is hereby incorporated by reference.

9.10 Real Property. Subject to the Incorporation Provisions, Section 8.2 of the Original Master Lease is hereby incorporated by reference.

9.11 Utilities. Subject to the Incorporation Provisions, Sections 10.1 and 10.2 of the Original Master Lease are hereby incorporated by reference; provided however, that the phrases "and, in the case of the Phase II Building, to Tenant's premises in such Building" and "(or, in the case of the Phase II Building, are not separately metered to Tenant's premises in that Building)" are hereby deleted in their entirety.

9.12 Alterations; Surrender Obligations; Signs. Subject the Incorporation Provisions, Sections 11.1 through 11.5 of the Original Master Lease are hereby incorporated by reference, except for (i) the last portion of the first sentence in Section 11.1, as amended by Section 1(h) of the Master Amendment (beginning with "except that (i) subject to the final sentence…") and (ii) the fifth sentence of Section 11.2 (which begins with "Tenant shall also be responsible"). Notwithstanding the foregoing, the language excluded by clause (i) above shall

not be excluded and shall be deemed to be incorporated into this Sublease, if Master Landlord consents to Subtenant having the rights to perform certain alterations, additions or improvements without consent as set forth therein. Further, notwithstanding anything to the contrary herein, if Subtenant enters into a direct lease of the Premises with the Master Landlord commencing immediately upon termination of the Master Lease and Sublandlord is fully released from any obligations with respect to the surrender condition of the Premises under the Master Lease, Sublandlord agrees that Subtenant shall not be obligated under this Sublease to complete any such removal or restoration.

9.13 Maintenance and Repairs. Subject to the Incorporation Provisions, Section 12.1(a) and Section 12.2 of the Original Master Lease are hereby incorporated by reference, except for the second sentence of Section 12.2(c).

9.14 Use; No Nuisance, Compliance with Laws, Liquidation Sales, & Environmental Matters. Subject to the Incorporation Provisions, Sections 13.1 through 13.6 of the Original Master Lease are hereby incorporated by reference, provided that notwithstanding anything to the contrary contained in this Sublease, under no circumstances shall Subtenant ever have any responsibility for any breach or default of these provisions existing on or prior to the date of this Sublease.

9.15 Insurance. Subject to the Incorporation Provisions, Sections 14.1 through 14.5 of the Original Master Lease and Section 14.7 of the Original Master Lease are hereby incorporated by reference. Without limiting the generality of the foregoing, Subtenant acknowledges and agrees that Subtenant shall carry the same insurance that Sublandlord is obligated to carry under the Original Master Lease, provided, however, that Subtenant shall name Subtenant, Sublandlord and Master Landlord (and any other third parties identified by Sublandlord or Master Landlord in accordance with the terms of the Master Lease) as insureds, additional insureds, or loss payees under such insurance policies as their interests may appear.

9.16 Sublease and Assignment. Subject to the Incorporation Provisions, Article 15, as amended by Section 1(i) of the Master Amendment, is hereby incorporated by reference and shall govern any such assignment or subletting, except as set forth in this Section 9.16. Subtenant shall not voluntarily or involuntarily, by operation of law or otherwise, assign, sublet, mortgage or otherwise encumber all or any portion of its interest in this Sublease or in the Premises without obtaining the prior written consent of Sublandlord and Master Landlord with respect thereto. So long as Master Landlord's consent is obtained, Sublandlord shall not unreasonably withhold, condition, or delay its consent to any proposed assignment or sublease; provided, however, that Sublandlord or Master Landlord, as the case may be, may require as a condition of granting any such consent that (i) the proposed transferee demonstrate that its financial resources and tangible net worth are at least equal to Subtenant's financial resources and tangible net worth as of the Effective Date, (ii) the nature of the transferee's proposed use of the Premises and the transferee's reputation shall be reasonably satisfactory to Sublandlord and (iii) Subtenant reaffirms, in form satisfactory to Sublandlord, its continuing liability under the Sublease. Notwithstanding the foregoing, Sublandlord confirms that Subtenant is entitled to complete a Permitted Transfer (as defined in Section 15.1 of the Original Master Lease) without Sublandlord's consent, but with prior or concurrent notice by Subtenant to Sublandlord (a

"***Subtenant Permitted Transfer***"). It is acknowledged, however, that, unless and to the extent agreed otherwise in the Consent (defined below) or other separate agreement between Subtenant and Master Landlord, Subtenant shall be required to obtain Master Landlord's consent to any Subtenant Permitted Transfer. Any assignment, subletting, mortgage or other encumbrance attempted by Subtenant to which Sublandlord and/or Master Landlord has not consented in writing pursuant to the provisions hereof (unless such consent is not required) shall be null and void and of no effect.

9.17 Right of Entry and Quiet Enjoyment. Subject to the Incorporation Provisions, Article 16 of the Original Master Lease is hereby incorporated by reference.

9.18 Casualty and Taking. Subject to the Incorporation Provisions, Article 17 of the Original Master Lease is hereby incorporated by reference, provided, that, Sublandlord shall have no right to terminate this Sublease as a result of damage, destruction or taking, unless (i) such damage, destruction or taking affects the 333 Building, and is of such a magnitude that the Sublandlord has the right to terminate the Master Lease with respect to the 333 Building as a result; or (ii) the damage, destruction or taking (A) affects spaces other than the 333 Building which are leased by Sublandlord under the Master Lease, (B) is of such magnitude that Sublandlord has the right to terminate the Master Lease, and (C) Sublandlord is not entitled to terminate the Master Lease with respect to the affected spaces without also terminating the Lease with respect to the 333 Building.

9.19 Default. Subject to the Incorporation Provisions, Article 18 of the Original Master Lease is hereby incorporated by reference.

9.20 Subordination. Subject to the Incorporation Provisions (except as provided below), Section 19.1 of the Original Master Lease is hereby incorporated by reference, except for the second and parenthetical third sentence. Notwithstanding anything to the contrary in the Incorporation Provisions, it is acknowledged and agreed that references in Section 19.1 of the Original Master Lease to any assignee, ground lessor, mortgagee, trustee, beneficiary or sale/leaseback lessor or other party with an interest in the Buildings, the Property, the Center or any of them, are deemed to be references to Master Landlord's (as opposed to Sublandlord's) assignee, ground, lessor, mortgagee, trustee, beneficiary or sale/leaseback lessor.

9.21 Sale of Sublandlord's Interest. Subject to the Incorporation Provisions, Section 19.2 of the Original Master Lease is hereby incorporated by reference, provided, that, references to "interest in the Buildings and the Property" shall be deemed to be references to "interest in the Master Lease."

9.22 Estoppel Certificate. Subject to the Incorporation Provisions, Section 19.3 of the Original Master Lease is hereby incorporated by reference, provided, that, notwithstanding anything to the contrary in the Incorporation Provisions, references therein to the term "Landlord" shall be deemed to refer to both Master Landlord and Sublandlord.

9.23 Subordination to CC&Rs. Subject to the Incorporation Provisions, Section 19.4 of the Original Master Lease is hereby incorporated by reference.

9.24 Mortgagee Protection. Subject to the Incorporation Provisions, Section 19.5 of the Original Master Lease is hereby incorporated by reference, provided that, notwithstanding anything to the contrary in the Incorporation Provisions, references therein to the term "Landlord" shall be deemed to refer to Master Landlord.

9.25 Severability. Subject to the Incorporation Provisions, Section 21.4 of the Original Master Lease is hereby incorporated by reference.

9.26 Surrender; No Merger. Subject to the Incorporation Provisions, Section 21.6 of the Original Master Lease is hereby incorporated by reference.

9.27 Interpretation. Subject to the Incorporation Provisions, Section 21.7 of the Original Master Lease is hereby incorporated by reference.

9.28 No Partnership. Subject to the Incorporation Provisions, Section 21.10 of the Original Master Lease is hereby incorporated by reference.

9.29 Financial Information. Subject to the Incorporation Provisions, Section 21.11 of the Original Master Lease is hereby incorporated by reference.

9.30 Costs. Subject to the Incorporation Provisions, Section 21.12 of the Original Master Lease is hereby incorporated by reference.

9.31 Time. Subject to the Incorporation Provisions, Section 21.13 of the Original Master Lease is hereby incorporated by reference.

9.32 Rules and Regulations. Subject to the Incorporation Provisions, Section 21.14 of the Original Master Lease is hereby incorporated by reference.

9.33 Parking and Traffic. Subject to the Incorporation Provisions, Section 21.20 of the Original Master Lease (as amended by Section 1(g) of the Master Amendment) is hereby incorporated by reference, except for the following provisions which require payment of a monthly fee for parking: (A) the fourth sentence of Section 21.20(b) of the Original Master Lease, which begins with the phrase "The monthly fee", (B) the last parenthetical sentence of Section 21.20(b) of the Original Master Lease, and (C) clause (ii) of Section 1(g) of the Master Amendment. Without limiting the generality of the Incorporation Provisions, it is acknowledged that the TDMP program and the administration and management thereof are obligations of the Master Landlord and Sublandlord shall have no responsibility with respect thereto.

9.34 Site Plan. Subject to the Incorporation Provisions, the Site Plan attached to the Master Amendment as Exhibit A is hereby incorporated by reference.

10. Additional Provisions.

10.1 Notices. In the event that Sublandlord or Subtenant shall receive any notice from Master Landlord for any reason pertaining to the Premises (it being agreed that Sublandlord has no obligation to deliver to Subtenant notices under the Master Lease that relate to spaces other than the Premises leased by Sublandlord under the Master Lease), then, within three (3) business days from the date of such receipt, such party shall send a copy of such notice to the other party. All notices, demands, consents and approvals which may or are required to be given by either party to the other hereunder shall be given in the manner provided in Section 21.1 of the Original Master Lease at the addresses shown below (or such other addresses as the parties may designate in writing and delivered in compliance with this Section 10.1). Subject to the Consent, notices to the Master Landlord shall be given in accordance with Section 21.1 of the Master Lease.

Notices To Sublandlord:	Amgen Inc. One Amgen Center Drive Mail Stop: 28-1-A Thousand Oaks, CA 91320-1799 Attention: Corporate Real Estate
With a copy to:	Amgen Inc. One Amgen Center Drive Mail Stop: 35-2-A Thousand Oaks, CA 91320-1799 Attention: Operations Law Group
Notices to Subtenant Prior to Commencement:	NGM Biopharmaceuticals 630 Gateway Blvd South San Francisco, CA 94080 Office: 650-243-5550 Email: awun@ngmbio.com Attention: Aetna Wun Trombley, Ph.D.
Notices to Subtenant After Commencement Both Before and After Commencement, With a Copy to:	At the Premises Attn: CFO and COO Cooley, LLP, 101 California St, 5th Floor San Francisco, CA 94111-5800 Attn: Anna B. Pope

10.2 [Intentionally Omitted]

10.3 Test Fits. Subtenant may engage a third party of its choice to develop suggested programming and layouts for Subtenant's use of the Premises ("***Test Fits***"). Sublandlord shall contribute up to a maximum of Fifteen Cents ($.15) per rentable square foot of the Premises for the costs of such Test Fits (separate and apart from the Subtenant Improvement Allowance referenced below) (the "***Test Fit Allowance***"). Sublandlord shall distribute the Test Fit Allowance to Subtenant or Subtenant's architect upon execution of this Sublease. To the extent the cost of any Test Fits exceed the Test Fit Allowance, such excess costs shall be Subtenant's sole responsibility, provided, that Subtenant shall be entitled to apply the Subtenant Improvement Allowance to such costs.

10.4 Subtenant Improvements.

10.4.1 Alterations and Improvements By Subtenant.

(a) **Subtenant Improvements.** Subtenant shall be entitled to construct tenant improvements in the Premises (the "***Subtenant Improvements***"), including reasonable security measures for the Premises, subject to and in accordance with the terms of that certain Subtenant Work Letter to be attached to the Consent (which is expressly incorporated herein by this reference) (the "***Subtenant Work Letter***") and the terms of the Master Lease and this Sublease. All Subtenant Improvements are subject to the review and approval by Sublandlord and Master Landlord and such processes and procedures as may be required by Master Landlord and will be constructed using Subtenant's own architects and contractors. In no event will Subtenant proceed with any Subtenant Improvements without first obtaining Sublandlord's consent (which shall not be unreasonably withheld, conditioned or delayed), as well as Master Landlord's consent to such Subtenant Improvements pursuant to the terms of the Subtenant Work Letter. As provided in such Subtenant Work Letter, (i) Subtenant shall construct the Subtenant Improvements only after necessary permits, licenses and approvals have been obtained from appropriate governmental agencies; (ii) Subtenant shall construct all Subtenant Improvements in compliance with all relevant codes, laws, rules, regulations, and ordinances and the terms and conditions set forth in the Subtenant Work Letter; (iii) subject to Subtenant's right to receive the Subtenant Improvement Allowance (as defined and set forth in Section 10.4.2 below), all Subtenant Improvements shall be made at Subtenant's sole cost and shall be diligently prosecuted to completion; and (iv) Subtenant shall be solely responsible for obtaining a certificate of occupancy or other legal certification such that the Premises can be legally occupied.

(b) **No Liens.** Should a lien be made or filed against the Premises or real property on which the Premises are situated, Subtenant at its sole cost, shall bond against or discharge said lien within ten (10) business days after Sublandlord's or Master Landlord's request to do so.

(c) **Incorporation of Master Amendment Provisions**. Subject to the Subtenant Work Letter and the Incorporation Provisions, Section 2 of the Master Amendment is hereby incorporated by reference, except for (i) Section 2(a) of the Master Amendment, (ii) Section 2(c) of the Master Amendment, and (iii) Section 2(d) of the Master Amendment.

10.4.2 Subtenant Improvement Allowance. Subtenant shall construct the Subtenant Improvements in accordance with the terms hereof and the Subtenant Work Letter, at Subtenant's cost, provided, that, Sublandlord shall provide Subtenant with an improvement allowance equal to One Hundred Twenty-Five Dollars ($125.00) per rentable square foot of the Premises (the "***Subtenant Improvement Allowance***"). Subtenant shall be entitled to apply the Subtenant Improvement Allowance to hard and soft costs incurred by Subtenant to construct the Subtenant Improvements and to prepare for Subtenant's occupancy to the Premises,

including, without limitation, all architectural and engineering services, project management, design supervision and construction management fees, moving expenses, costs and expenses to acquire and install security systems, furniture, fixtures and equipment, permitting fees, signage, and data/telephone cabling. Sublandlord confirms that Sublandlord shall not charge Subtenant any construction management or supervision fee which Sublandlord may be charged or may incur (and Sublandlord shall pay any such fees and related costs and expenses charged by Master Landlord). Sublandlord shall disburse the Subtenant Improvement Allowance in accordance with the Disbursement Procedures set forth in Section 10.4.3 below.

10.4.3 Reimbursement Procedure. With respect to Sublandlord's contribution obligations for the Subtenant Improvement Allowance, Sublandlord shall disburse such payment to Subtenant not more than once per month, within forty-five (45) days after receipt by Sublandlord from Subtenant of: (i) an invoice from Subtenant for such costs; (ii) copies of all underlying invoices showing such costs; (iii) executed contract waivers and/or mechanic's lien releases with respect to any portion of the Subtenant Improvements then constructed or completed; and (iv) such other information reasonably requested by Sublandlord (the "***Disbursement Documentation***"). Sublandlord shall be entitled to rely on the accuracy of any and all invoices, fee statements and lien waivers for labor and materials performed on or furnished to the Premises in connection with the Subtenant Improvements and to rely, to the extent submitted, on any and all certifications as to the cost of the improvement submitted by Subtenant's general contractor or architect. In addition, Sublandlord shall have the option and right to inspect all Subtenant Improvements prior to any disbursement of the Subtenant Improvement Allowance.

10.5 Removal of Personal Property. All articles of personal property, and all business and trade fixtures, machinery and equipment (installed by Subtenant and that can be removed without damage to the Building or negatively impacting Building systems unless Subtenant repairs any such damage or mitigates any negative impact), cabinet work, furniture and movable partitions (collectively, the "***Subtenant's Property***"), if any, owned or installed by Subtenant at its expense in the Premises shall be and remain the property of Subtenant and may be removed by Subtenant at any time, provided that Subtenant, at its expense, shall repair any damage to the Premises caused by such removal or by the original installation. Notwithstanding the foregoing, Subtenant acknowledges and agrees that, pursuant to Section 11.3 of the Original Master Lease, removal of any trade fixtures which are affixed to the building or the property or which affect the exterior or structural portions of the Building shall require Master Landlord's prior written approval; provided, however, should the Consent include a list of trade fixtures which Subtenant shall be allowed to remove from the Premises, then (i) Sublandlord agrees that, subject to the terms of the Consent (and so long as Sublandlord is released by Master Landlord from any obligation or responsibility with respect thereto), it will not have any approval rights in connection therewith, and (ii) Sublandlord shall be deemed to have to consented to the removal of any trade fixtures approved by Master Landlord in accordance with the terms of the Consent. Subtenant shall remove all or any part of the aforementioned property at the expiration or sooner termination of the Sublease and repair any damage caused by such removal and/or installation, all at Subtenant's expense, and shall otherwise leave the Premises in broom-clean condition in compliance with the terms of Section 12.2(c) of the Original Master Lease. Any articles of personal property, or all business and trade fixtures, machinery and equipment, cabinet work, furniture and movable partitions provided by Sublandlord shall remain the property of Sublandlord, and Subtenant shall not remove any of them from the Premises without the prior written consent of Sublandlord.

10.6 Waiver. The waiver of either party of any agreement, condition or provision contained herein or any provision incorporated herein by reference shall not be deemed to be a waiver of any subsequent breach of the same or any other agreement, condition or provision, nor shall any custom or practice which may evolve between the parties in the administration of the terms hereof be construed to waive or to lessen the right of a party to insist upon the performance by the other party in strict accordance with said terms. The subsequent acceptance of Rent hereunder by Sublandlord shall not be deemed to be a waiver of any preceding breach by Subtenant of any agreement or condition of this Sublease or the same incorporated herein by reference, other than the failure of Subtenant to pay the particular Rent so accepted, regardless of Sublandlord's knowledge of such preceding breach at the time of acceptance of such Rent.

10.7 Complete Agreement. Except for the Consent, that certain Confidential Disclosure Agreement by and between Sublandlord and Subtenant dated as of June 23, 2015, this written Sublease, together with all exhibits hereto, contains all the representations and the entire understanding between the parties hereto with respect to the subject matter hereof. There are no oral agreements between Sublandlord and Subtenant affecting this Sublease, and this Sublease supersedes and cancels any and all previous negotiations, arrangements, brochures, agreements and understandings, if any, between Sublandlord and Subtenant or displayed by Sublandlord, its agents or real estate brokers to Subtenant with respect to the subject matter of this Sublease, the Premises or the Building. There are no representations between Sublandlord and Subtenant other than those contained in or incorporated by reference into this Sublease.

11. Indemnification; Exculpation

11.1 Non-Liability Of Sublandlord. Sublandlord shall not be liable to Subtenant, and Subtenant hereby waives and releases all claims against Sublandlord and its partners, officers, directors, employees, trustees, successors, assigns, agents, servants, affiliates, representatives, and contractors (collectively, herein "***Sublandlord Affiliates***") for injury or damage to any person or property occurring or incurred in connection with, or in any way relating to, the Premises. Without limiting the foregoing, neither Sublandlord nor any of the Sublandlord Affiliates shall be liable for and there shall be no abatement of Rent for (i) any damage to Subtenant's property stored with or entrusted to Sublandlord or Sublandlord Affiliates, or (ii) loss of or damage to any property by theft or any other wrongful or illegal act, or (iii) any injury or damage to persons or property resulting from fire, explosion, falling plaster, steam, gas, electricity, water or rain which may leak from any part of the Premises or from the pipes, appliances, appurtenances or plumbing works therein or from the roof, street or sub-surface or from any other place or resulting from dampness or any other cause whatsoever or from the acts or omissions of other sublessees, occupants or other visitors to the Premises or from any other cause whatsoever, or (iv) any latent or other defect in the Premises. Notwithstanding any provision of this Section 11.1 to the contrary, the waivers of liability contained in this Section 11.1 shall not apply to claims for bodily injury or death or damage to property resulting from the gross negligence or willful misconduct of Sublandlord or its agents, employees or contractors, *provided, that*, any claims with respect to property damage shall be subject to the waiver of subrogation set forth in Section 14.4

of the Original Master Lease (incorporated herein by Section 9.15) and under no circumstance shall Sublandlord be liable under this Sublease for damage to property in excess of $25,000.00 per occurrence. Notwithstanding anything to the contrary set forth herein or in the Master Lease, in no event shall Sublandlord ever be liable to Subtenant for (and Subtenant hereby waives any right to recover from Sublandlord for) any lost profits, business interruption or any form of consequential, special or punitive damages.

11.2 Indemnification of Sublandlord; Indemnification of Master Landlord. Subtenant shall indemnify, defend, protect and hold Sublandlord, Master Landlord's managing agent, Master Landlord and their respective members, partners, shareholders, officers, directors, agents, employees and contractors (collectively, the "***Indemnified Parties***"), harmless from and against any and all liability for all claims, suits, judgments, losses, costs, obligations, damages, expenses, interest and liabilities, including, without limitation, reasonable attorneys' fees and costs, incurred by Sublandlord or asserted against Sublandlord and arising in connection with (i) this Sublease, the Premises or Subtenant's activities in or about the Premises (including, without limitation, the use, occupancy and enjoyment of the Property by Subtenant or any invitees, sublessees, licensees, assignees, agents, employees or contractors of Subtenant or holding under Subtenant), or (ii) the act, negligence, fault or omission of Subtenant, its agents, servants, contractors, employees, representatives, licensees or invitees. Notwithstanding any provision of this Section 11.2 to the contrary, the indemnification contained in this Section 11.2 shall not apply to claims resulting from the gross negligence or willful misconduct of the party claiming indemnification or its agents, employees or contractors. Subtenant will give Sublandlord prompt notice of any casualty or accident in, on or about the Premises. The provisions of this Section 11.2 shall survive the expiration or earlier termination of this Sublease.

11.3 Master Landlord Default; Refusal of Consents. Notwithstanding any provision of this Sublease to the contrary, but subject to Sections 9.1.1 and 9.1.3 above, (a) Sublandlord shall not be liable or responsible in any way for any loss, damage, cost, expense, obligation or liability suffered by Subtenant by reason or as the result of any breach, default or failure to perform by the Master Landlord under the Master Lease, including without limitation, in any case where services, utilities, repairs, maintenance or other performance is to be rendered by Master Landlord with respect to the Premises under the Master Lease and Master Landlord either fails to do so or does in an improper, negligent, inadequate or otherwise defective manner, and (b) if Master Landlord refuses to grant Subtenant its consent or approval for any action or circumstances requiring Master Landlord's approval, Sublandlord shall be released from any obligation to grant its consent or approval with respect thereto.

12. Letter of Credit.

12.1 Letter of Credit Issuance; Amount. Concurrently with Subtenant's execution of the Sublease, Subtenant shall deliver to Sublandlord, as collateral for the full and faithful performance by Subtenant of all of its obligations under the Sublease and to compensate Sublandlord for all losses and damages Sublandlord may suffer as a result of any default by Subtenant under the Sublease, an irrevocable and unconditional negotiable standby letter of credit (the "***Letter of Credit***"), in the form attached hereto as Exhibit E and containing the terms required herein, payable in the City of Santa Clara, California, running in favor of

Sublandlord issued by a solvent, nationally recognized commercial bank that is acceptable to Sublandlord in its sole discretion (the "***Bank***") and (1) is chartered under the laws of the United States, any State thereof or the District of Columbia, and which is insured by the Federal Deposit Insurance Corporation; and (2) has a long term rating of BBB or higher as rated by Moody's Investors Service and/or A or higher as rated by Standard & Poor's, and Fitch Ratings Ltd., under the supervision of the Superintendent of Banks of the State of California, or a national banking association (collectively, the "***Letter of Credit Issuer Requirements***"), in the amount of $2,249,126.88 (the "***Letter of Credit Amount***"). Subject to the terms of Section 12.8 below, Subtenant shall have the right to reduce the Letter of Credit Amount by $374,854.48 on the third (3rd) anniversary of the First Phase Rent Commencement Date, and by another $374,854.48 on the fourth (4th) anniversary of the First Phase Rent Commencement Date.

12.2 Letter of Credit Requirements. The Letter of Credit shall be (i) at sight, irrevocable and unconditional, (ii) maintained in effect, whether through replacement, renewal or extension, for the period from the Sublease Commencement Date and continuing until the date (the "***LC Expiration Date***") which is one hundred twenty (120) days after the Expiration Date, and Subtenant shall deliver a new Letter of Credit or certificate of renewal or extension to Sublandlord at least thirty (30) days prior to the expiration of the Letter of Credit then held by Sublandlord, without any action whatsoever on the part of Sublandlord, (iii) subject to "***The International Standby Practices ISP98***" International Chamber Of Commerce Publication No. 590, (iv) fully assignable by Sublandlord, and (v) permit partial draws. In addition to the foregoing, the form and terms of the Letter of Credit shall provide, among other things, in effect that: (A) Sublandlord shall have the right to draw down an amount up to the face amount of the Letter of Credit upon the presentation to the Bank of Sublandlord's written statement that (1) Sublandlord is entitled to draw down on the Letter of Credit pursuant to the terms and conditions of this Sublease, and no other document or certification from Sublandlord shall be required other than its written statement to this effect (a "**Default Draw**"), or (2) Subtenant, as applicant, shall have failed to provide to Sublandlord a new or renewal Letter of Credit satisfying the terms of this Section 12 at least thirty (30) days prior to the expiration of the Letter of Credit then held by Sublandlord, or (3) Subtenant has filed a voluntary petition under the Federal Bankruptcy Code or (4) an involuntary petition has been filed against Subtenant under the Federal Bankruptcy Code; and (B) the Letter of Credit will be honored by the Bank without inquiry as to the accuracy thereof and regardless of whether Subtenant disputes the content of such statement. Sublandlord confirms and agrees that Sublandlord shall only be entitled to make a Default Draw as permitted under Section 12.5.

12.3 Transfer Rights. The Letter of Credit shall also provide that Sublandlord may, at any time and without notice to Subtenant and without first obtaining Subtenant's consent thereto, transfer all of its interest in and to the Letter of Credit to another party, person or entity, regardless of whether or not such transfer is separate from or as a part of the assignment by Sublandlord of its rights and interests in and to the Sublease. In the event of a transfer of Sublandlord's interest in the Building, Sublandlord shall transfer the Letter of Credit, in whole (or Subtenant shall, upon Sublandlord's request, cause a substitute letter of credit to be delivered, as applicable) to the transferee and thereupon Sublandlord shall, without any further agreement between the parties, be released by Subtenant from all liability therefor, and it is agreed that the provisions hereof shall apply to every transfer or assignment of the whole of said Letter of

Credit to a new Sublandlord. In connection with any such transfer of the Letter of Credit by Sublandlord, Subtenant shall be responsible for paying the Bank's transfer and processing fees in connection therewith and shall execute and submit to the Bank any applications, documents and instruments as may be necessary to effectuate such transfer.

12.4 Replenishment; Renewal. If, as result of any application or use by Sublandlord of all or any part of the Letter of Credit, the amount of the Letter of Credit shall be less than the Letter of Credit Amount, Subtenant shall, within ten (10) business days thereafter, provide Sublandlord with additional letter(s) of credit in an amount equal to the deficiency (or a replacement letter of credit in the total Letter of Credit Amount), and any such additional (or replacement) letter of credit shall comply with all of the provisions of this Section 12, and if Subtenant fails to comply with the foregoing, notwithstanding anything to the contrary contained in this Sublease, the same shall constitute an incurable default by Subtenant. Subtenant further covenants and warrants that it will neither assign nor encumber the Letter of Credit or any part thereof and that neither Sublandlord nor its successors or assigns will be bound by any such assignment, encumbrance, attempted assignment or attempted encumbrance. Without limiting the generality of the foregoing, if the Letter of Credit expires earlier than the LC Expiration Date, a renewal thereof or substitute letter of credit, as applicable, shall be delivered to Sublandlord not later than thirty (30) days prior to the expiration of the Letter of Credit, which shall be irrevocable and automatically renewable as above provided through the LC Expiration Date upon the same terms as the expiring Letter of Credit or such other terms as may be acceptable to Sublandlord in its sole discretion. However, if the Letter of Credit is not timely renewed or a substitute letter of credit is not timely received, or if Subtenant fails to maintain the Letter of Credit in the amount and in accordance with the terms set forth in this Section 12, Sublandlord shall have the right to present the Letter of Credit to the Bank in accordance with the terms of this Section 12, and the proceeds of the Letter of Credit may be applied by Sublandlord for Subtenant's failure to fully and faithfully perform all of Subtenant's obligations under this Sublease and against any Rent payable by Subtenant under this Sublease that is not paid when due and/or to pay for all losses and damages that Sublandlord has suffered or that Sublandlord reasonably estimates that it will suffer as a result of any default by Subtenant under this Sublease. Any unused proceeds shall constitute the property of Sublandlord and need not be segregated from Sublandlord's other assets. However, Sublandlord agrees to pay to Subtenant within thirty (30) days after the LC Expiration Date the amount of any proceeds of the Letter of Credit received by Sublandlord and not applied against any Rent payable by Subtenant under this Sublease that was not paid when due or used to pay for any losses and/or damages suffered by Sublandlord (or reasonably estimated by Sublandlord that it will suffer; provided that to the extent any estimated expenses are not actually expensed within 90 days after the LC Expiration Date, such amounts shall be returned to Subtenant) as a result of any default by Subtenant under this Sublease; provided, however, that if prior to the LC Expiration Date a voluntary petition is filed by Subtenant, or an involuntary petition is filed against Subtenant by any of Subtenant's creditors, under the Federal Bankruptcy Code, then Sublandlord shall not be obligated to make such payment in the amount of the unused Letter of Credit proceeds until either all preference issues relating to payments under this Sublease have been resolved in such bankruptcy or reorganization case or such bankruptcy or reorganization case has been dismissed.

12.5 Security for Subtenant's Performance. Subtenant hereby acknowledges and agrees that Sublandlord is entering into the Sublease in material reliance upon the ability of Sublandlord to draw upon the Letter of Credit in the event Subtenant fails to fully and faithfully perform all of Subtenant's obligations under this Sublease and to compensate Sublandlord for all losses and damages Sublandlord may suffer as a result of the occurrence of any default on the part of Subtenant not cured within the applicable cure period under the Sublease. Sublandlord may make a Default Draw (without obligation to do so, and without notice), in part or in whole, only following the occurrence of any default on the part of Subtenant which is not cured within the applicable cure period under the Sublease. Notwithstanding the foregoing, if Sublandlord is prohibited by law from sending Subtenant a default notice, such as due to a bankruptcy stay, Sublandlord shall be entitled to make a Default Draw upon a default by Subtenant with no notice or cure period being required. Subtenant agrees not to interfere in any way with payment to Sublandlord of the proceeds of the Letter of Credit, either prior to or following a "***draw***" by Sublandlord of any portion of the Letter of Credit, regardless of whether any dispute exists between Subtenant and Sublandlord as to Sublandlord's right to draw from the Letter of Credit. No condition or term of the Sublease shall be deemed to render the Letter of Credit conditional to justify the issuer of the Letter of Credit in failing to honor a drawing upon such Letter of Credit in a timely manner. Subtenant agrees and acknowledges that Subtenant has no property interest whatsoever in the Letter of Credit or the proceeds thereof and that, in the event Subtenant becomes a debtor under any chapter of the Federal Bankruptcy Code, neither Subtenant, any trustee, nor Subtenant's bankruptcy estate shall have any right to restrict or limit Sublandlord's claim and/or rights to the Letter of Credit and/or the proceeds thereof by application of Section 502(b)(6) of the Federal Bankruptcy Code.

12.6 Failure of Letter of Credit Issuer Requirements. Notwithstanding anything to the contrary herein, if at any time the Letter of Credit Issuer Requirements are not met, or if the financial condition of such issuer changes in any other materially adverse way, as determined by Sublandlord in its sole discretion, then Subtenant shall within ten (10) business days of written notice from Sublandlord deliver to Sublandlord a replacement Letter of Credit which otherwise meets the requirements of this Sublease, including without limitation, the Letter of Credit Issuer Requirements. Notwithstanding anything in this Sublease to the contrary, Subtenant's failure to replace the Letter of Credit and satisfy the Letter of Credit Issuer Requirements within such ten (10) day period Sublandlord shall constitute a material default for which there shall be no notice or grace or cure periods being applicable thereto. In addition and without limiting the generality of the foregoing, if the issuer of any letter of credit held by Sublandlord is insolvent or is placed in receivership or conservatorship by the Federal Deposit Insurance Corporation, or any successor or similar entity, or if a trustee, receiver or liquidator is appointed for the issuer, then, effective as of the date of such occurrence, said Letter of Credit shall be deemed to not meet the requirements of this Section 12, and Subtenant shall within ten (10) business days of written notice from Sublandlord deliver to Sublandlord a replacement Letter of Credit which otherwise meets the requirements of this Section 12 and that meets the Letter of Credit Issuer Requirements (and Subtenant's failure to do so shall, notwithstanding anything in this Section 12 or the Sublease to the contrary, constitute a material default for while there shall be no notice or grace or cure periods being applicable thereto other than the aforesaid ten (10) business day period).

12.7 Not a Security Deposit. Sublandlord and Subtenant acknowledge and agree that in no event or circumstance shall the Letter of Credit or any renewal thereof or substitute therefor be (i) deemed to be or treated as a "***security deposit***" within the meaning of California Civil Code Section 1950.7, (ii) subject to the terms of such Section 1950.7, or (iii) intended to serve as a "***security deposit***" within the meaning of such Section 1950.7. The parties hereto (A) recite that the Letter of Credit is not intended to serve as a security deposit and such Section 1950.7 and any and all other laws, rules and regulations applicable to security deposits in the commercial context ("***Security Deposit Laws***") shall have no applicability or relevancy thereto and (B) waive any and all rights, duties and obligations either party may now or, in the future, will have relating to or arising from the Security Deposit Laws.

12.8 Reduction of Letter of Credit Amount. Subject to the terms of this Section 12.8, Subtenant shall be entitled to a reduction of the face amount of the Letter of Credit (i) by the amount of $374,854.48, effective as of the third (3rd) anniversary of the First Phase Rent Commencement Date; and (ii) by the amount of $374,854.48 effective as of the fourth (4th) anniversary of the First Phase Rent Commencement Date. As a condition to the reduction of the Letter of Credit amount, Subtenant shall not have defaulted beyond any applicable notice and cure period under this Sublease during the 12-month period prior to the reduction date, no uncured breach or default by Subtenant shall then exist under the Sublease and Subtenant has not become a debtor under any chapter of the Federal Bankruptcy Code. Provided that such conditions to reduction are satisfied, Subtenant may cause the Bank to issue a new Letter or Credit or an amendment to the Letter of Credit reflecting the reduced amount, and Sublandlord shall cooperate with such reduction.

13. Abatement for Failure of Services. If and to the extent that Sublandlord receives abatement of the rent or other charges required to be paid by Sublandlord under the Master Lease with respect to the Premises in accordance with Section 10.2 of the Original Master Lease, Sublandlord will abate the same proportion of Subtenant's Rent hereunder.

14. Miscellaneous.

14.1 Counterparts. This Sublease may be executed in one or more counterparts by the parties hereto. All counterparts shall be construed together and shall constitute one agreement.

14.2 [Intentionally Omitted]

14.3 Modification. This Sublease may not be modified in any respect except by a document in writing executed by both parties hereto or their respective successors.

14.4 Attorneys' Fees. If either party hereto brings an action or other proceeding against the other to enforce, protect, or establish any right or remedy created under or arising out of this Sublease, the prevailing party shall be entitled to recover from the other party, all costs, fees and expenses, including, without limitation, attorneys' fees, accounting fees, expenses, and disbursements, incurred or sustained by such prevailing party in connection with such action or proceeding (including, but not limited to, any appellate proceedings relating thereto) or in connection with the enforcement of any judgment or award rendered in such proceeds. The prevailing party's rights to recover its costs, fees and expenses, and any award thereof, shall be separate from, shall survive, and shall not be merged with any judgment.

14.5 Binding Effect. This Sublease shall be binding on and inure to the benefit of the parties and their respective heirs, successors and assigns.

14.6 Time Is Of Essence. Time is of essence in respect of each and every term, covenant and condition of this Sublease.

14.7 Governing Law. This Sublease shall be governed by, and construed in accordance with, the laws of the State of California (without giving effect to any choice or conflict of law provision or rule (whether of the State of California or any other jurisdiction) that would cause the application of laws of any jurisdiction other than those of the State of California).

14.8 Representations And Warranties Regarding Authority. Subtenant and Sublandlord hereby represent and warrant to the other party that (i) each person signing this Sublease on their behalf is duly authorized to execute and deliver this Sublease on their behalf, (ii) the execution, delivery and performance of this Sublease has been duly and validly authorized in accordance with the articles of incorporation, bylaws and other organizational documents of such party, (iii) such party is duly organized and in good standing under the laws of their State of incorporation and (iv) upon the execution and delivery of this Sublease, this Sublease shall be binding and enforceable against such party in accordance with its terms.

14.9 Confidentiality. Sublandlord and Subtenant hereby agree that the information contained in this Sublease shall be held in strict confidence and none of the terms or conditions contained herein shall be disclosed to any person or entity, other than Master Landlord and Sublandlord's and Subtenant's respective current or prospective attorneys, accountants, consultants, brokers, lenders, investors, acquirers, assignees and subtenants, all of whom (except Master Landlord) shall agree to the confidentiality of this Sublease. Subtenant and its agents shall avoid discussing with, or disclosing to, any third parties (except those specifically listed above) any of the terms, conditions or particulars contained herein. This provision shall not be deemed breached if disclosure is required by applicable law or otherwise consented to in writing by the non-disclosing party.

14.10 Publicity. Subject to the Incorporation Provisions, Section 5 of the Master Amendment is hereby incorporated herein by reference, except for the sixth (6th) and seventh (7th) sentences thereof. In addition, Subtenant and Sublandlord each hereby acknowledges and agrees that, except as may be necessary to implement or otherwise effectuate the terms of this Sublease, (i) Subtenant shall not use, without Sublandlord's prior written approval, which may be withheld in Sublandlord's sole discretion, the name of Sublandlord, its affiliates, trade names, trademarks or trade dress, products, or any signs, markings, or symbols from which a connection to Sublandlord, in Sublandlord's absolute and sole discretion, may be reasonably inferred or implied, in any manner whatsoever, including, without limitation, press releases, marketing materials, or advertisements; and (ii) Sublandlord shall not use, without Subtenant's prior written approval, which may be withheld in Subtenant's sole discretion, the name of Subtenant, its affiliates, trade names, trademarks or trade dress, products, or any signs, markings, or symbols from which a connection to Subtenant, in Subtenant's absolute and sole discretion, may be reasonably inferred or implied, in any manner whatsoever, including, without limitation, press releases, marketing materials, or advertisements.

14.11 Consent of Master Landlord. This Sublease is conditioned upon, and shall not take effect until, receipt of the written consent of the Master Landlord hereto (the "***Consent***"). Subtenant hereby agrees for the benefit of Sublandlord and Master Landlord (as an express intended third party beneficiary) that (a) other than as expressly and specifically agreed to in writing by Master Landlord, no act, consent, approval or omission of Master Landlord pursuant to this Sublease shall (i) constitute any form of recognition of Subtenant as the direct tenant of Master Landlord, (ii) create any form of contractual duty or obligation on the part of Master Landlord in favor of Subtenant or (iii) waive, affect or prejudice in any way Master Landlord's right to treat this Sublease and Subtenant's rights to the Premises as being terminated upon any termination of the Master Lease, and (b) Master Landlord shall have the absolute right to evict Subtenant, and all parties holding under Subtenant, from the Premises upon any termination of the Master Lease. Notwithstanding the foregoing, Sublandlord agrees to request recognition and non-disturbance protection for Subtenant's benefit from Master Landlord. Further, it is acknowledged that Subtenant may wish to obtain certain additional rights directly from Master Landlord with respect to Subtenant's use and occupancy of the Premises. Any such agreement with Master Landlord that would bind Sublandlord or otherwise modify or affect Sublandlord's rights under the Master Lease or this Sublease shall be subject to Sublandlord's prior written consent.

14.12 Cooperation. Each party shall reasonably cooperate with the other party with respect to seeking any necessary approvals from the Master Landlord, including without limitation approval of this Sublease and the Subtenant Improvements. Subtenant agrees to complete and return any and all forms requested by Sublandlord from time to time for administrative purposes related to the Sublease within five (5) business days of Sublandlord's written request.

14.13 Anti-Corruption. Neither Subtenant nor any of its directors, officers, employees, or any agent, representative, subcontractor or other third party acting for or on Subtenant's behalf (collectively, "***Representatives***"), shall, directly or indirectly, offer, pay, promise to pay, or authorize such offer, promise or payment, of anything of value, to any person, governmental agency, or other entity for the purposes of obtaining any improper advantage in connection with this Sublease. Not by way of limitation of Section 4 of this Sublease, neither Subtenant nor any of its directors, officers or employees shall violate any applicable laws, rules and regulations concerning or relating to public or commercial bribery or corruption ("***Anti-Corruption Laws***"). Within five (5) business days of Sublandlord's written request, Subtenant shall execute and deliver a compliance certification (which certification may be limited to Subtenant's knowledge) with respect to Subtenant's compliance with Anti-Corruption Laws and this Section 14.13.

14.14 Nonresidential Building Energy Use Disclosure Requirement Compliance. Subtenant hereby acknowledges that Sublandlord may be required to obtain from utility providers and disclose certain information concerning the energy performance of the Premises' recent historical energy use data pursuant to California Public Resources Code Section 25402.10 and the regulations adopted pursuant thereto (collectively, the "***Energy Disclosure***

Requirements"). Sublandlord shall not be liable to Subtenant for the accuracy or content of the information provided by utility providers pursuant to the Energy Disclosure Requirements. Subtenant hereby acknowledges prior receipt of the Data Verification Checklist, as defined in the Energy Disclosure Requirements (the "***Energy Disclosure Information***"), and agrees that Sublandlord has timely complied in full with Sublandlord's obligations under the Energy Disclosure Requirements. Subtenant acknowledges and agrees that (i) Sublandlord makes no representation or warranty regarding the energy performance of the Premises or the accuracy or completeness of the Energy Disclosure Information, (ii) the Energy Disclosure Information is for the current condition, occupancy and use of the Premises and that the energy performance of the Premises may vary depending on future condition, occupancy and/or use of the Premises, and (iii) Sublandlord shall have no liability to Subtenant for any errors or omissions in the Energy Disclosure Information. If and to the extent not prohibited by applicable law, Subtenant hereby waives any right Subtenant may have to receive the Energy Disclosure Information, including, without limitation, any right Subtenant may have to terminate the Sublease as a result of Sublandlord's failure to disclose such information. Further, Subtenant hereby releases Sublandlord from any and all losses, costs, damages, expenses and/or liabilities relating to, arising out of and/or resulting from the Energy Disclosure Requirements, including, without limitation, any liabilities arising as a result of Sublandlord's failure to disclose the Energy Disclosure Information to Subtenant prior to the execution of this Sublease. Subtenant further acknowledges that pursuant to the Energy Disclosure Requirements, Sublandlord may be required in the future to disclose information concerning Subtenant's energy usage to certain third parties, including, without limitation, Master Landlord, prospective purchasers, lenders and tenants of the Premises (the "***Subtenant Energy Use Disclosure***"). Subtenant hereby (A) consents to all such Subtenant Energy Use Disclosures, (B) acknowledges that Sublandlord shall not be required to notify Subtenant of any Subtenant Energy Use Disclosure, and (C) agrees that upon request from Sublandlord, Subtenant shall provide Sublandlord with any energy usage data for the Premises, including, without limitation, copies of utility bills for the Premises. Further, Subtenant hereby releases Sublandlord from any and all losses, costs, damages, expenses and liabilities relating to, arising out of and/or resulting from any Subtenant Energy Use Disclosure.

14.15 Survival. Without limiting survival provisions which would otherwise be implied or construed under applicable law, the provisions of Sections 3.3.3, 6.2, 7, 9.1.3, 9.5, 9.12, 9.14, 9.33, 11.1, 11.2 and 14.14 hereof shall survive the termination of this Sublease with respect to matters occurring or liabilities accruing prior to the expiration of this Sublease.

[remainder of page intentionally left blank; signatures on next page]

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand on the date first above written.

SUBLANDLORD:

AMGEN INC.,
a Delaware corporation

By: /s/ David W. Meline

Name: David W. Meline

Its: Executive Vice President and Chief Financial Officer

SUBTENANT:

NGM BIOPHARMACEUTICALS, INC.,
a Delaware corporation

By: /s/ William J. Rieflin

Name: William J. Rieflin

Its: CEO

By: /s/ David T. Woodhouse

Name: David T. Woodhouse

Its: CFO

EXHIBIT A

MASTER LEASE

[See attached]

BUILD-TO-SUIT LEASE

THIS BUILD-TO-SUIT LEASE ("Lease") is made and entered into as of December 20, 2001, by and between SLOUGH BTC, LLC, a Delaware limited liability company ("Landlord"), and TULARIK INC., a Delaware corporation ("Tenant").

THE PARTIES AGREE AS FOLLOWS:

1. PROPERTY

1.1 Lease of Buildings.

(a) Landlord leases to Tenant and Tenant hires and leases from Landlord, on the terms, covenants and conditions hereinafter set forth, the buildings (individually, a "Building" and collectively, the "Buildings") to be constructed pursuant to Article 5 hereof and Exhibit C attached hereto on a portion of the real property described in Exhibit A attached hereto (the "Property"), as follows: (i) [REDACTED] (the "Phase IA Building"), to be located on the Property substantially as shown for the building designated "Building A" on the site plan attached hereto as Exhibit B (the "Site Plan"); (ii) [REDACTED] (the "Phase IB Building"), to be located on the Property substantially as shown for the building designated "Building B" on the Site Plan; (iii) [REDACTED] (the "Phase II Building"), to be located on the Property substantially as shown for the building designated "Building E" on the Site Plan; and (iv) subject to final design and to receipt of all required governmental approvals, an enclosed connector bridge connecting the Phase IA Building to the Phase IB Building at the second-story level (the "Connector Bridge"). With respect to the governmental approvals described in clause (iv) of the preceding sentence, Landlord has advised Tenant that the additional square footage created by construction of the Connector Bridge will cause the Project to exceed the maximum square footage amount for which the Project is presently entitled and that, without limiting any other governmental approvals that may be required, a modification of the maximum square footage amount under the existing Project entitlements will therefore be necessary in order to permit construction of the Connector Bridge. Landlord shall pursue diligently and reasonably the design of the Connector Bridge and the securing of all governmental approvals and permits necessary for the construction of the Connector Bridge (other than the interior improvements therein, which shall be Tenant's responsibility as part of the Tenant Improvements), and Tenant shall cooperate diligently and reasonably with Landlord, in any respects reasonably requested by Landlord, in connection with the design and authorization of the Connector Bridge. For purposes of this Lease, the Connector Bridge shall generally be considered to be a part of the Phase IB Building, and the square footage of the Connector Bridge (which is not presently included in the estimated square footage figure used in this Lease for the Phase IB Building), determined in accordance with Section 1.1(d) of this Lease, shall be included in the square footage of the Phase IB Building for purposes of calculating Tenant's Minimum Rent, additional rent and Operating Expense obligations with respect to the Phase IB Building and the Tenant Improvement Allowance with respect to the Phase IB Building; provided, however, that the square footage of the Connector Bridge shall not be taken into account in determining the number of parking spaces allocated to Tenant or required to be paid for by Tenant pursuant to Section 21.20(b) of this Lease. All references in this Lease to the Phase II Building as being leased to Tenant hereunder shall be construed to refer solely to the office and laboratory portion of the Phase II Building and not to the ground-floor retail portion of such building. The Phase IA Building and the Phase IB Building (including the Connector Bridge) are sometimes hereinafter collectively referred to as the "Phase I Buildings." The Property is commonly known as Britannia Oyster Point (the "Center") and is located at Oyster Point Boulevard and Veterans Boulevard in the City of South San Francisco, County of San Mateo, State of California. The Buildings and the other improvements to be constructed on the Property pursuant to Article 5 hereof and Exhibit C attached hereto are sometimes referred to collectively herein as the "Improvements." The parking areas, driveways, sidewalks, landscaped areas and other portions of the Center that lie outside the exterior walls of the Buildings and of the other buildings to be constructed in the Center, as depicted on the Site Plan and as hereafter modified by Landlord from time to time in accordance with the provisions of this Lease, are sometimes referred to herein as the "Common Areas."

(b) As an appurtenance to Tenant's leasing of the Buildings pursuant to Section 1.1(a), Landlord hereby grants to Tenant, for the benefit of Tenant and its employees, suppliers, shippers, customers and invitees, during the term of this Lease, the non-exclusive right to use, in common with others entitled to such use, (i) those portions of the Common Areas improved from time to time for use as parking areas, driveways, sidewalks, landscaped areas, or for other common purposes, and (ii) all easements, access rights and similar rights and privileges relating to or appurtenant to the Center and created or existing from time to time under any easement agreements, declarations of covenants, conditions and restrictions, or other written agreements now or hereafter of record with respect to the Center, subject however to any limitations applicable to such rights and privileges under applicable law, under this Lease and/or under the written agreements creating such rights and privileges.

(c) Tenant shall be entitled to install, in areas of the Property adjacent to one or more of the Buildings, in what would otherwise constitute Common Areas, at Tenant's sole expense and for the exclusive use of Tenant and its employees and invitees, subject to all of the conditions set forth in this paragraph (c), (1) a half-court basketball court and (2) an equipment yard. In no event shall Tenant be obligated to pay rent for the use of such areas, nor shall such areas be considered part of the Buildings or premises leased by Tenant for purposes of any calculations of rent or of Tenant's Operating Cost Share under this Lease, but for all other purposes (including, but not limited to, the purposes specifically identified in this paragraph (c)), such areas shall be considered part of the Buildings leased by Tenant under this Lease. Without limiting the generality of the foregoing, Tenant's construction and use of such basketball court and equipment yard shall be subject to the following requirements and restrictions: (i) the locations in which such basketball court and equipment yard are to be constructed shall be subject to Landlord's prior written consent, in Landlord's sole discretion; (ii) the plans and specifications for construction of all improvements constituting such basketball court and equipment yard shall be subject to Landlord's prior written consent, in Landlord's sole discretion, and such improvements shall otherwise be constructed in full compliance with the requirements applicable to Tenant's Work under Exhibit C attached hereto; (iii) the liability insurance to be carried by Tenant pursuant to Section 14.1(a) of this Lease shall cover, to Landlord's satisfaction, any claims and liabilities arising out of the use of such basketball court and equipment yard; (iv) Tenant shall ensure that the construction and use of such basketball court and equipment yard do not interfere with the use of any parking or driveway areas on the Property and do not create any visual or noise interference with the use and enjoyment of the Property by the other tenants thereof; (v) Tenant shall be solely responsible for the maintenance and repair of such basketball court and equipment yard, at Tenant's sole expense, as part of Tenant's maintenance obligations under Section 12.2 of this Lease; and (vi) Tenant shall take all such steps as Landlord in its reasonable discretion may require in order to restrict access to and use of such basketball court and equipment yard to Tenant's employees and invitees.

(d) All measurements of building areas under this Lease shall be made by Landlord's architect in accordance with the same formula applied by Landlord to the building areas for the other leased buildings in the Center, which formula consists of measurement from the exterior faces of exterior walls, from the dripline of any overhangs and, where applicable, from the centerline of any demising walls. In measuring interior space (relevant only to the determination of space actually being used or occupied by Tenant in the Phase II Building during the phase-in of Tenant's occupancy thereof), measurements involving any demising walls separating space actually used or occupied by Tenant from space not used or occupied by Tenant shall be made to the centerline of the demising wall.

1.2 Landlord's Reserved Rights. To the extent reasonably necessary to permit Landlord to exercise any rights of Landlord and discharge any obligations of Landlord under this Lease, Landlord shall have, in addition to the right of entry set forth in Section 16.1 hereof, the following rights: (i) to make changes to the Common Areas, including, without limitation, changes in the location, size or shape of any portion of the Common Areas, and to construct and/or relocate parking structures and/or parking spaces in the Center, but not materially decrease the number of parking spaces in the Center; (ii) to close temporarily any of the Common Areas for maintenance or other reasonable purposes, provided that reasonable parking and reasonable access to the Buildings remain available; (iii) to construct, alter or add to other buildings or improvements in the Center; (iv) to build in areas adjacent to the Center and to add

such areas to the Center; (v) to use the Common Areas while engaged in making additional improvements, repairs or alterations to the Center or any portion thereof; and (vi) to do and perform such other acts with respect to the Common Areas and the Center as may be necessary or appropriate; provided, however, that notwithstanding anything to the contrary in this Section 1.2, Landlord's exercise of its rights hereunder (x) shall not cause any material diminution of Tenant's rights, nor any material increase of Tenant's obligations, under this Lease, and (y) shall be conducted in such a manner as to minimize, to the extent reasonably possible, any adverse effect on Tenant's business operations in the Buildings (including, but not limited to, reasonable prior notice to Tenant of any pile-driving or other activities of Landlord that will cause significant noise or vibration in the Buildings).

2. TERM

2.1 Term; Rent Commencement Dates. The term of this Lease shall commence upon mutual execution of this Lease by Landlord and Tenant.

(a) Tenant's Minimum Rental, additional rent and Operating Expense obligations with respect to the Phase I Buildings shall commence on the earlier to occur of (i) the date which is one hundred eighty (180) days after the date Landlord delivers to Tenant a Structural Completion Certificate for each of the Phase I Buildings (or, if the Structural Completion Certificates for the two Phase I Buildings are delivered on different dates, the date Landlord delivers to Tenant the Structural Completion Certificate for the second of the two Phase I Buildings) pursuant to the Workletter attached hereto as Exhibit C (the "Workletter"), subject to any adjustments in such time period to the extent authorized or required under the provisions of such Workletter, or (ii) the date Tenant takes occupancy of and commences operation of its business in either of the Phase I Buildings, the earlier of such dates being herein called the "Phase I Rent Commencement Date"; provided, however, that in no event shall the Phase I Rent Commencement Date occur earlier than May 1, 2003, unless determined pursuant to clause (ii) of this sentence or unless an earlier date is hereafter mutually agreed upon in writing by Landlord and Tenant; and provided further, however, that if the Phase I Rent Commencement Date is determined pursuant to clause (ii) of this sentence as a result of Tenant's occupancy of and commencement of business operations in one of the two Phase I Buildings, then notwithstanding any other provisions of this Lease to the contrary, Tenant's Minimum Rental, additional rent and Operating Expense obligations with respect to the second of the Phase I Buildings and with respect to the Connector Bridge (regardless of whether the Phase IB Building is the first Phase I Building to be occupied by Tenant) shall not commence until the earlier to occur of the date described in clause (i) of this sentence or the date Tenant takes occupancy of and commences operation of its business in the second Phase I Building. Based on the estimated construction schedules attached hereto as Exhibit D, the parties presently estimate that the Phase I Rent Commencement Date shall occur on May 1, 2003.

(b) Tenant shall be entitled to occupy the Phase II Building in up to four (4) successive phases. The first such phase ("Phase IIA") shall consist of a minimum of 23,300 square feet of the Phase II Building. The second such phase ("Phase IIB") shall consist of at least that amount of space which, when added to the Phase IIA space, shall equal a minimum of 46,600 square feet of the Phase II Building. The third such phase ("Phase IIC") shall consist of at least that amount of space which, when added to the Phase IIA and Phase IIB spaces, shall equal a minimum of 69,900 square feet of the Phase II Building. The fourth such phase ("Phase IID") shall consist of the remainder, if any, of the non-retail portion of the Phase II Building. As to any of such phases, Tenant shall have the right to take and occupy a larger portion of the Phase II Building than the minimum space required for the applicable phase, in which event the space for the applicable phase shall be deemed to consist of the greater of the minimum required amount of space for such phase or the amount of space actually occupied by Tenant. Tenant shall not be deemed to be occupying any portion of the Phase II Building solely by reason of constructing interior improvements in such portion in connection with Tenant's intended future use and occupancy of such portion or by reason of maintaining insurance on or performing maintenance or repair work in such portion, but use of any portion of the Phase II Building for any other purpose by Tenant (including, but not limited to, any storage uses other than storage or staging of materials on a temporary basis in the course of construction) shall be deemed to constitute occupancy of such portion by Tenant. At least thirty (30) days prior to the applicable Rent Commencement Date for each phase of Tenant's occupancy of the Phase II Building as set forth in subparagraphs (i) through (iv) below, Tenant shall notify Landlord in

writing of the portion of the Phase II Building that Tenant intends to actually use and occupy during such phase. Tenant acknowledges, however, that if Tenant in fact uses a greater portion of the Phase II Building than specified in Tenant's notice to Landlord with respect to the applicable phase, then Tenant's Minimum Rental, additional rent and Operating Expense obligations with respect to Tenant's occupancy of the Phase II Building during such phase shall be controlled by the amount of space actually used or occupied by Tenant. Landlord shall have the right to inspect the Phase II Building from time to time prior to the Phase IID Rent Commencement Date, on not less than one (I) business day's prior notice to Tenant, to confirm and measure the amount of space actually being occupied by Tenant in the Phase II Building, and the measurement and calculation of such space actually being occupied by Tenant shall be made by Landlord's architect as contemplated in Section 1.1(d) of this Lease. On the Phase IIA Rent Commencement Date as hereinafter defined, all of Tenant's obligations under this Lease shall become applicable and effective in full with respect to all of the Phase II Building, except that the following obligations with respect to each phase of Tenant's occupancy of the Phase II Building shall become effective only on the respective Rent Commencement Date for such phase: (A) Tenant's Minimum Rental, additional rent and Operating Expense obligations with respect to such phase; (B) Tenant's obligations under Section 8.2 of this Lease with respect to real property taxes and assessments upon Improvements constructed by Landlord and located within such phase; (C) Tenant's obligation under Section 10.1 of this Lease to pay for utilities or services supplied to or consumed in or with respect to such phase, but only to the extent such utilities or services are consumed by or supplied at the request of Landlord or its agents, employees or contractors and the cost thereof can reasonably be segregated from the cost of utilities or services furnished to the portions of the Phase II Building occupied by Tenant; (D) Tenant's maintenance and repair obligations under Section 12.2 of this Lease with respect to any Improvements constructed or installed in such phase by Landlord as part of Landlord's Work under the Workletter, except that Tenant shall be responsible for any such maintenance or repairs required as a result of the negligent or willful acts or omissions of Tenant or its agents, employees, contractors or invitees; and (E) Tenant's obligation to cause the applicable phase to comply with any applicable Requirements under Section 13.4(a) of this Lease, except to the extent the applicability of such Requirements is triggered by Tenant's actual use of any portion of the Building or by Tenant's construction of Improvements in any portion of the Building. The Rent Commencement Dates for the respective phases of the Phase II Building shall be as follows:

(i) Tenant's Minimum Rental, additional rent and Operating Expense obligations with respect to Phase IIA shall commence on the earlier to occur of (A) the date which is one hundred eighty (180) days after the date Landlord delivers to Tenant a Structural Completion Certificate for the Phase II Building pursuant to the Workletter, subject to any adjustments in such time period to the extent authorized or required under the provisions of such Workletter, or (B) the date Tenant takes occupancy of and commences operation of its business in any portion of the Phase II Building, the earlier of such dates being herein called the "Phase IIA Rent Commencement Date"; provided, however, that in no event shall the Phase IIA Rent Commencement Date occur earlier than May 1, 2004, unless determined pursuant to clause (B) of this sentence or unless an earlier date is hereafter mutually agreed upon in writing by Landlord and Tenant. Based on the foregoing provisions and on the estimated construction schedules attached hereto as Exhibit D, the parties presently estimate that the Phase IIA Rent Commencement Date shall occur on May 1, 2004.

(ii) Tenant's Minimum Rental, additional rent and Operating Expense obligations with respect to Phase IIB shall commence on the earlier to occur of (A) the date which is six (6) months after the Phase IIA Rent Commencement Date (as extended for any Landlord Delays occurring after the Phase IIA Rent Commencement Date in connection with Tenant's construction of Tenant Improvements in Phase IIB) or (B) the date Tenant takes occupancy of and commences operation of its business in any portion of Phase IIB of the Phase II Building, the earlier of such dates being herein called the "Phase IIB Rent Commencement Date"; provided, however, that in no event shall the Phase IIB Rent Commencement Date occur earlier than November 1, 2004, unless determined pursuant to clause (B) of this sentence or unless an earlier date is hereafter mutually agreed upon in writing by Landlord and Tenant.

(iii) Tenant's Minimum Rental, additional rent and Operating Expense obligations with respect to Phase IIC shall commence on the earlier to occur of (A) the date which is six (6) months after the Phase IIB Rent Commencement Date (as extended for any Landlord Delays occurring after the Phase IIB Rent Commencement Date in connection with Tenant's construction of Tenant Improvements in Phase IIC) or (B) the date Tenant takes occupancy of and commences operation of its business in any portion of Phase IIC of the Phase II Building, the earlier of such dates being herein called the "Phase IIC Rent Commencement Date"; provided, however, that in no event shall the Phase IIC Rent Commencement Date occur earlier than May 1, 2005, unless determined pursuant to clause (B) of this sentence or unless an earlier date is hereafter mutually agreed upon in writing by Landlord and Tenant.

(iv) Tenant's Minimum Rental, additional rent and Operating Expense obligations with respect to Phase IID shall commence on the earlier to occur of (A) the date which is six (6) months after the Phase IIC Rent Commencement Date (as extended for any Landlord Delays occurring after the Phase IIC Rent Commencement Date in connection with Tenant's construction of Tenant Improvements in Phase IID) or (B) the date Tenant takes occupancy of and commences operation of its business in any portion of Phase IID of the Phase II Building, the earlier of such dates being herein called the "Phase IID Rent Commencement Date"; provided, however, that in no event shall the Phase IID Rent Commencement Date occur earlier than November 1, 2005, unless determined pursuant to clause (B) of this sentence or unless an earlier date is hereafter mutually agreed upon in writing by Landlord and Tenant.

(c) Notwithstanding any other provisions of this Section 2.1 or of Section 2.3 below, if Landlord has not delivered a Final Completion Certificate under the Workletter with respect to the Building Shell of a Building or phase of a Building, as applicable, and completed all Building Shell work that must be completed as a condition of delivery of such Final Completion Certificate for the applicable Building or phase, by the date the Rent Commencement Date for such Building or phase would otherwise occur under this Section 2.1, and if the incomplete elements of such Building Shell work materially impair Tenant's ability to occupy and commence operation of its business in the applicable Building or phase, then the Rent Commencement Date for the applicable Building or phase, to the extent it is determined by the passage of time since delivery of the Structural Completion Certificate and not by actual occupancy, shall be extended, day for day, for a period equal to the lesser of (i) the number of days from the date the Rent Commencement Date for such Building or phase would otherwise have occurred under this Section 2.1 until the date Landlord has completed all Building Shell work that must be completed as a condition of delivery of the Final Completion Certificate for the applicable Building or phase to such an extent that Tenant's ability to occupy and commence operation of its business in the applicable Building or phase is no longer materially impaired by any remaining incomplete elements of Landlord's Building Shell work in the applicable Building or phase, or (ii) the number of days by which Landlord's delay (beyond the date the applicable Rent Commencement Date would otherwise have occurred pursuant to this Section 2.1) in completing all Building Shell work that must be completed as a condition of delivery of the Final Completion Certificate for the applicable Building or phase has actually delayed Tenant's ability to occupy and commence operation of its business in the applicable Building or phase; provided, however, that the period (if any) for which any Rent Commencement Date is extended pursuant to this paragraph (c) shall be reduced, day for day, for a period equal to the length of any delays in Landlord's completion of the Building Shell work that must be completed as a condition of delivery of the Final Completion Certificate for the applicable Building or phase to the extent such delays are caused by any Tenant Delays (as defined in the Workletter). Nothing in this paragraph (c) is intended to imply or require that Landlord's Site Improvements relating to a Building or phase shall be completed by the Rent Commencement Date for such Building or phase; in fact, the parties expressly contemplate that completion of various elements of the Site Improvements may be deferred by Landlord, in its discretion, until after completion of Tenant's Work under the Workletter in order to avoid the risk of damage to such Site Improvements in the course of Tenant's Work, and Landlord agrees to complete such Site Improvements with reasonable diligence following completion of Tenant's Work under the Workletter, subject to the effects of any Tenant Delays and/or Unavoidable Delays (as defined in the Workletter).

(d) The term of this Lease shall end on the day (the "Termination Date") immediately preceding the fifteenth (15th) anniversary of the last of the Phase II Rent Commencement Dates to occur, unless sooner terminated or extended as hereinafter provided.

2.2 Early Possession. Tenant shall have the nonexclusive right to occupy and take possession of the respective Buildings from and after the date of Landlord's delivery of the Structural Completion Certificate described in the applicable portion of Section 2.1 for the applicable Building, even though Landlord will be continuing to construct the balance of Landlord's Work as contemplated in the Workletter, for the purpose of constructing Tenant's Work as contemplated in the Workletter and for the purpose of installing fixtures and furniture, laboratory equipment, computer equipment, telephone equipment, low voltage data wiring and personal property and other similar work related to the construction of Tenant's Work and/or preparatory to the commencement of Tenant's business in the applicable Building. Such occupancy and possession, and any early access under the next sentence of this Section 2.2, shall be subject to and upon all of the terms and conditions of this Lease and of the Workletter (including, but not limited to, conditions relating to the maintenance of required insurance), except that Tenant shall have no obligation to pay Minimum Rental or Operating Expenses for any period prior to the applicable Rent Commencement Date as determined under Section 2.1; such early possession shall not advance or otherwise affect the respective Rent Commencement Dates or the Termination Date determined under Section 2.1. Tenant shall also be entitled to have early access to the respective Buildings and the Property at all appropriate times prior to Landlord's delivery of the Structural Completion Certificate for the applicable Building, subject to the approval of Landlord and its general contractor (which approval shall not be unreasonably withheld or delayed) and to all other provisions of this Section 2.2 and of the Workletter (including, but not limited to, conditions relating to the maintenance of required insurance), solely for the purpose of installing fixtures and equipment and other similar work preparatory to the construction of Tenant's Work and the commencement of Tenant's business on the Property, and Tenant shall not be required to pay Minimum Rental or Operating Expenses by reason of such early access until the applicable Rent Commencement Date otherwise occurs; without limiting the generality of the preceding portion of this sentence, Tenant shall be entitled to have early access to the Property and the respective Buildings as soon as the roof metal decking of the applicable Building is in place, to begin hanging electrical, mechanical and plumbing services from the overhead structure, subject to all of the provisions of this Section 2.2.

2.3 Delay In Possession. Landlord agrees to use its best reasonable efforts to complete Landlord's Work (as defined in the Workletter) promptly, diligently and within the respective time periods set forth in the respective estimated construction schedules attached hereto as Exhibit D and incorporated herein by this reference, as such schedules may be modified from time to time by mutual written agreement of Landlord and Tenant, and subject to any Tenant Delays and Unavoidable Delays (as respectively defined in the Workletter); provided, however, that Landlord shall not be liable for any damages caused by any delay in the completion of such work, nor shall any such delay affect the validity of this Lease or the obligations of Tenant hereunder. Notwithstanding any other provision of this Section 2.3, however, unless Landlord delivers a Structural Completion Certificate for at least one of the two Phase I Buildings and tenders possession of those completed structural portions of the Building Shell for such Building that must be completed as a condition of delivery of the Structural Completion Certificate by the date which is one hundred twenty (120) days after the date specified for structural completion as to such Phase I Building in the applicable Estimated Construction Schedule attached hereto as Exhibit D, Tenant shall have the right to terminate this Lease without further liability hereunder by written notice delivered to Landlord at any time prior to Landlord's delivery of a Structural Completion Certificate for at least one Phase I Building and tender of possession of the completed structural portions of the Building Shell for such Phase I Building to Tenant; provided, however, that the applicable date on which Tenant's termination right becomes exercisable pursuant to this sentence shall be extended, day for day, for a period equal to the length of any delays in Landlord's design and construction of the respective Phase I Building Shells that are caused by any Unavoidable Delays or Tenant Delays (as respectively defined in the Workletter). If such a termination right arises in favor of Tenant and is properly exercised by Tenant, then Landlord shall reimburse Tenant for all of Tenant's out-of-pocket fees and costs incurred prior to the date of such termination for design, space planning, architectural, engineering and construction management services in connection with this Lease and the Workletter, which reimbursement shall be paid by Landlord to Tenant within thirty (30) days after Landlord's receipt of Tenant's written request for such reimbursement, accompanied by copies of such invoices and other supporting documentation as Landlord may reasonably request to evidence the nature and amount of the fees and costs for which such reimbursement is requested.

2.4 Acknowledgment Of Rent Commencement Dates. Promptly following the respective Rent Commencement Date for each Building or portion thereof, Landlord and Tenant shall execute a written acknowledgment of such Rent Commencement Date, the square footage of the Building or portion thereof (in the case of the Phase II Rent Commencement Dates) as to which the Rent Commencement Date applies, the Termination Date (if then determined) and related matters, substantially in the form attached hereto as Exhibit E (with appropriate insertions), which acknowledgment shall be deemed to be incorporated herein by this reference. Notwithstanding the foregoing requirement, the failure of either party to execute such a written acknowledgment shall not affect the determination of the applicable Rent Commencement Date, the applicable minimum rental and Operating Expense obligations, the Termination Date and related matters in accordance with the provisions of this Lease.

2.5 Holding Over. If Tenant holds possession of the Property or any portion thereof after the term of this Lease with Landlord's written consent, then except as otherwise specified in such consent, Tenant shall become a tenant from month to month at [REDACTED] and otherwise upon the terms herein specified for the period immediately prior to such holding over and shall continue in such status until the tenancy is terminated by either party upon not less than thirty (30) days prior written notice. If Tenant holds possession of the Property or any portion thereof after the term of this Lease without Landlord's written consent, then Landlord in its sole discretion may elect (by written notice to Tenant) to have Tenant became a tenant either from month to month or at will, at [REDACTED] and otherwise up [REDACTED] over, or may elect to pursue any and all legal remedies available to Landlord under applicable law with respect to such unconsented holding over by Tenant. Tenant shall indemnify and hold Landlord harmless from any loss, damage, claim, liability, cost or expense (including reasonable attorneys' fees) resulting from any delay by Tenant in surrendering the Property (except with Landlord's prior written consent), including but not limited to any claims made by a succeeding tenant by reason of such delay. Acceptance of rent by Landlord following expiration or termination of this Lease shall not constitute a renewal of this Lease.

[REDACTED]

3. RENTAL

3.1 Minimum Rental**.**

(a) Rental Amounts. Tenant shall pay to Landlord as minimum rental for the respective Buildings or applicable portions thereof, in advance, without deduction, offset (except as specifically authorized under Paragraph 4(c) of the Workletter, if applicable), notice or demand, on or before the applicable Rent Commencement Date for the respective Building and on or before the First day of each subsequent calendar month of the initial term of this Lease, the following amounts per month (the "Minimum Rental"), subject to adjustment in accordance with the terms of this Section 3.1:

(i) For the Phase IA Building, beginning on the Phase I Rent, Commencement Date, an amount equal to the applicable amount per square foot from the following table multiplied by the square footage of the Phase IA Building as determined pursuant to Section 3.1(d):

Months	Monthly Minimum Rental

[REDACTED]

(ii) For the Phase IB Building, beginning on the Phase I Rent Commencement Date, an amount equal to the applicable amount per square foot from the following table multiplied by the square footage of the Phase IB Building as determined pursuant to Section 3.1(d):

Months	Monthly Minimum Rental

[REDACTED]

(iii) For the Phase II Building, beginning on the Phase IIA Rent Commencement Date (with each successive phase of Tenant's occupancy of the Phase II Building being brought under the following table as of the applicable Rent Commencement Date for such phase at the rental rate determined under the following table by counting from the Phase IIA Rent Commencement Date), an amount equal to the applicable amount per square foot from the following table multiplied by the aggregate square footage of all then applicable phases of the Phase II Building as determined pursuant to Section 3.1 (d):

Months	Monthly Minimum Rental

[REDACTED]

(iv) If the obligation to pay Minimum Rental or additional rent hereunder commences on other than the first day of a calendar month or if the term of this Lease terminates on other than the last day of a calendar month, the Minimum Rental and any additional rent for such first or last month of the term of this Lease, as the case may be, shall be prorated based on the number of days the term of this Lease is in effect during such month. If an increase in Minimum Rental or additional rent becomes effective on a day other than the first day of a calendar month, the Minimum Rental or additional rent, as applicable, for that month shall be the sum of the two applicable rates, each prorated for the portion of the month during which such rate is in effect.

(b) Rental Amounts During First Extended Term. If Tenant properly exercises its right to extend the term of this Lease pursuant to Section 2.6 hereof, the Minimum Rental for each Building as to which Tenant has elected to extend during the first year of the first extended term shall be equal to the initial fair market rental (as defined below) for the applicable Building, determined as of the commencement of such extended term in accordance with this Section 3.1(b), and as of the beginning of each subsequent year of the first extended term such Minimum Rental shall be increased by an amount equal to the greater of (i) three percent (3%) of the Minimum Rental in effect during the immediately preceding lease year or (ii) the fair market rental escalation percentage (as defined below) for the applicable Building, determined as of the commencement of such extended term in accordance with this Section 3.1(b). Upon Landlord's receipt of a timely notice of Tenant's exercise of its option to extend the term of this Lease, the parties shall have sixty (60) days in which to agree on the initial fair market rental and the applicable rental escalation percentage for the Buildings as of the commencement of the first extended term for the uses permitted hereunder. If the parties agree on such initial fair market rental and rental escalation percentage, they shall execute an amendment to this Lease stating the amount of the Minimum Rental during the first year of the extended term (determined in accordance with this Section 3.1(b)) and the annually increased Minimum Rental for the balance of the first extended term. If the parties are unable to agree on such initial fair market rental and/or applicable rental escalation percentage within such sixty (60) day period, then within fifteen (15) days after the expiration of such period each party, at its cost and by giving notice to the other party, shall appoint a real estate appraiser who is a member of the American Institute of Real Estate Appraisers, or any other similar organization, and has at least five (5) years experience appraising similar commercial properties in northeastern San Mateo County, to determine the initial fair market rental and applicable rental escalation percentage for the Buildings as of the commencement of the first extended term in accordance with the provisions of this Section 3.1(b). If either party fails to appoint an appraiser within the allotted time, the single appraiser appointed by the other party shall be the sole appraiser, If an appraiser is appointed by each party and the two appraisers so appointed are unable to agree upon the initial fair market rental and/or the applicable rental escalation percentage within thirty (30) days after the appointment of the second, the two appraisers shall appoint a third similarly qualified appraiser within ten (10) days after expiration of such 30-day period; if they are unable to agree upon a third appraiser, then either party may, upon not less than five (5) days notice to the other party, apply to the Presiding Judge of the San Mateo County Superior Court for the appointment of a third similarly qualified appraiser. Each party shall bear its own legal fees in connection with appointment of the third appraiser and shall bear one-half of any other costs of appointment of the third appraiser and of such third appraiser's fee. The third appraiser, however selected, shall be a person who has not previously acted for either party in any capacity. Within thirty (30) days after the appointment of the third appraiser, a majority of the three appraisers shall set the initial fair market rental and the applicable rental escalation percentage for the first extended term and shall so notify the parties. If a majority are unable to agree within the allotted time, (i) the three appraised initial fair market rentals shall be added together and divided by three and the resulting quotient shall be the initial fair market rental for the first extended term, and (ii) the three appraised fair market rental escalation percentages shall be added together and divided by three and the resulting quotient shall be the fair market rental escalation percentage used in determining the applicable rental escalation percentage for purposes of clause (ii) of the first sentence of this Section 3.1(b), which determinations shall be binding on the parties and shall be enforceable in any further proceedings relating to this Lease. For purposes of this Section 3.1(b), the "fair market rental" and "fair market rental escalation percentage" for the respective Buildings shall be determined as follows: (x) in the case of a renewal term for any of the Buildings, with reference to the then prevailing market rental rates for properties in northeastern San Mateo County with shell and standard office, research and development improvements and site (common area) improvements comparable to those then existing in the applicable Building and on the Property, provided that no equipment or laboratory improvements shall be taken into account in determining such fair market rental; and (y) in the case of a lease or renewal term for any other building leased by Tenant under terms based on the terms of this Lease (for example, any building leased by Tenant pursuant to any of the provisions of Article 6 hereof, except to the extent any different basis of determination is specified in Landlord's First Refusal Notice or First Offer Notice, if applicable, under such Article 6), with reference to the then prevailing market rental rates and then prevailing market rental escalation provisions for leases of comparable length of properties in the South San Francisco market with shell and office, research and development improvements and site (common area) improvements comparable to those then existing in the applicable building and on the Property, taking into account for such determination all tenant improvements then existing in the applicable building (including, but not limited to, equipment and laboratory improvements installed as part of the initial construction of tenant improvements in such building).

(c) Rental Amounts During Second Extended Term. If Tenant properly exercises its right to a second extended term of this Lease pursuant to Section 2.6 hereof, the Minimum Rental during such second extended term shall be determined in the same manner provided in the preceding paragraph for the first extended term (initial fair market rental followed by subsequent annual escalations equal to the greater of 3% or fair market rental escalation percentage during the balance of the term), except that the determination shall be made as of the commencement of the second extended term.

(d) Determination of Square Footage for Rent Calculation Purposes. After completion of the Building Shell of each respective Building, Landlord shall cause the square footage of the respective Building (including, in the case of the Phase IB Building, the Connector Bridge if constructed as contemplated in Section 1.1(a) hereof) to be measured by Landlord's architect, and at the commencement of each phase of Tenant's occupancy of the Phase II Building, Landlord shall cause the square footage of the space actually used or occupied by Tenant in the Phase II Building to be measured by Landlord's architect, in each case in accordance with the measurement formula specified in Section 1.1(d) of this Lease, which measurements by Landlord's architect shall be subject to approval (not unreasonably withheld or delayed) by Tenant's architect. Upon mutual approval of such measurement by Landlord's and Tenant's respective architects, the applicable square footages shall be set forth in the applicable Acknowledgment of Rent Commencement Date under Section 2.4 hereof and shall be used for calculation of Minimum Rental under Section 3.1(a), additional rent under Section 3.1(e) and Tenant's Operating Cost Share under Section 9.1 for all applicable periods.

(e) Additional Rent for Tenant Improvement Costs. In consideration of Landlord's willingness to provide the Tenant Improvement Allowance to Tenant in accordance with the provisions of the Workletter, Tenant agrees to pay to Landlord as additional rent hereunder, which additional rent shall be due with respect to each Building or phase thereof on the same dates and in the same manner as Minimum Rental for such Building or phase thereof, beginning on the applicable Rent Commencement Date for the applicable Building or phase thereof, an amount calculated separately for each such Building or phase thereof as follows: (i) for each of the Phase I Buildings, for the first one hundred twenty (120) months after the applicable Rent Commencement Date for the applicable Building, an amount equal to [REDACTED] per square foot per month multiplied by the applicable square footage for such Building as determined for purposes of Section 3.1(d) above, (ii) for each of the Phase I Buildings, for months one hundred twenty-one (121) through one hundred eighty (180) after the applicable Rent Commencement Date for the applicable Building, an amount equal to [REDACTED] per square foot per month multiplied by the applicable square footage for such Building as determined for purposes of Section 3.1(d) above, and (iii) for each phase of the Phase II Building, for the first one hundred eighty **(**180**)** months after the applicable Rent Commencement Date for such phase, an amount equal to [REDACTED] per square foot per month multiplied by the applicable square footage for such phase as determined for purposes of Section 3.1(d) above.

3.2 Late Charge. If Tenant fails to pay when due rental or other amounts due Landlord hereunder, such unpaid amounts shall bear interest for the benefit of Landlord at a rate equal to the lesser of fifteen percent (15%) per annum or the maximum rate permitted by law, from the date due to the date of payment. In addition to such interest, Tenant shall pay to Landlord a late charge in an amount equal to six percent (6%) of any installment of minimum rental and any other amounts due Landlord if not paid in full on or before the fifth (5th) day after such rental or other amount is due. Tenant acknowledges that late payment by Tenant to Landlord of rental or other amounts due hereunder will cause Landlord to incur costs not contemplated by this Lease, including, without limitation, processing and accounting charges and late charges which may be imposed on Landlord by the terms of any loan relating to the Property. Tenant further acknowledges that it is extremely difficult and impractical to fix the exact amount of such costs and that the late charge set forth in this Section 3.2 represents a fair and reasonable estimate thereof. Acceptance of any late charge by Landlord shall not constitute a waiver of Tenant's default with respect to overdue rental or other amounts, nor shall such acceptance prevent Landlord from exercising any other rights and remedies available to it. Acceptance of rent or other payments by Landlord shall not constitute a waiver of late charges or interest accrued with respect to such rent or other payments or *any prior installments thereof, nor* of any other defaults by Tenant, whether monetary or non-monetary in nature, remaining uncured at the time of such acceptance of rent or other payments.

4. [OMITTED]

5. CONSTRUCTION

5.1 Construction of Improvements.

(a) Landlord shall, at Landlord's cost and expense (except as otherwise provided herein and in the Workletter), construct Landlord's Work as defined in and in accordance with the terms and conditions of the Workletter. Landlord shall use its best efforts to complete such construction promptly, diligently and within the applicable time periods set forth in the estimated construction schedules attached hereto as Exhibit D and incorporated herein by this reference, as such schedules may be modified or revised from time to time in accordance with the Workletter, subject to Tenant Delays and Unavoidable Delays as defined in the Workletter.

(b) Tenant shall, at Tenant's cost and expense (except as otherwise provided herein and in the Workletter), construct Tenant's Work as defined in and in accordance with the terms and conditions of the Workletter.

5.2 Condition of Property. Landlord shall deliver the Building Shell for each Building and the other Improvements constructed by Landlord to Tenant clean and free of debris, promptly upon completion of construction thereof, and Landlord warrants to Tenant that each Building Shell and the other Improvements constructed by Landlord (i) shall be free from material structural defects and (ii) shall be constructed in compliance in all material respects with the plans and specifications developed pursuant to the Workletter and mutually approved (to the extent required thereunder) by Landlord and Tenant, subject to any changes implemented in such plans and specifications in accordance with the procedures set forth in the Workletter. If it is determined that this warranty has been violated in any respect, then it shall be the obligation of Landlord, after receipt of written notice from Tenant setting forth with specificity the nature of the violation, to correct promptly, at Landlord's sole cost, the condition(s) constituting such violation. Tenant's failure to give such written notice to Landlord within ninety (90) days after the Rent Commencement Date for the applicable Building shall give rise to a conclusive presumption that Landlord has complied with all Landlord's obligations under this Section 5.2 with respect to the applicable Building, except with respect to latent defects (as to which such 90-day limit shall not apply). Without limiting the scope of Landlord's obligations under the foregoing provisions of this Section 5.2, Landlord also agrees to either (x) use its best reasonable efforts to enforce when and as necessary, for the benefit of Tenant and the Improvements, any and all contractor's and/or manufacturer's warranties with respect to any of Landlord's Work or, at Tenant's request, (y) assign any or all of such warranties to Tenant for enforcement purposes (provided, however, that Landlord may reserve joint enforcement rights under such warranties to the extent of Landlord's continuing obligations or warranties hereunder), and shall cooperate with Tenant in all reasonable respects in any enforcement of such assigned warranties. TENANT ACKNOWLEDGES THAT THE WARRANTIES CONTAINED IN THIS SECTION ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE PHYSICAL CONDITION OF THE IMPROVEMENTS TO BE CONSTRUCTED BY LANDLORD AND THAT LANDLORD MAKES NO OTHER WARRANTIES EXCEPT AS EXPRESSLY SET FORTH IN THIS LEASE.

5.3 Compliance with Law. Landlord warrants to Tenant that the Building Shells and other Improvements constructed by Landlord (when constructed), as they exist on the respective applicable Rent Commencement Dates, but without regard to the use for which Tenant will occupy the Buildings, shall not violate any covenants or restrictions of record or any applicable law, building code, regulation or ordinance in effect on the applicable Rent Commencement Date. Tenant warrants to Landlord that the Tenant Improvements and any other improvements constructed by Tenant from time to time shall not violate any applicable law, building code, regulation or ordinance in effect on the applicable Rent Commencement Date or at the time such improvements are placed in service. If it is determined that any of these warranties has been violated, then it shall be the obligation of the warranting party, after written notice from the other

party, to correct the condition(s) constituting such violation promptly, at the warranting party's sole cost and expense. Tenant acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty as to the present or future suitability of the Property for the conduct of Tenant's business or proposed business thereon.

[REDACTED]

[REDACTED]

7. [OMITTED]

8. TAXES

8.1 Personal Property. Tenant shall be responsible for and shall pay prior to delinquency all taxes and assessments levied against or by reason of (a) any and all alterations, additions and items installed or placed on, in or about any of the Buildings by Tenant or for Tenant's use and taxed as personal property rather than as real property, and/or (b) all personal property, trade fixtures and other property placed by Tenant on or about the Property. Upon request by Landlord, Tenant shall furnish Landlord with satisfactory evidence of Tenant's payment thereof. If at any time during the term of this Lease any of said alterations, additions or personal property, whether or not belonging to Tenant, shall be taxed or assessed as part of the Property, then such tax or assessment shall be paid by Tenant to Landlord immediately upon presentation by Landlord of copies of the tax bills in which such taxes and assessments are included and shall, for the purposes of this Lease, be deemed to be personal property taxes or assessments under this Section 8.1.

8.2 Real Property. To the extent any real property taxes and assessments on any of the Buildings (including, but not limited to, the Improvements) are assessed directly to Tenant, Tenant shall be responsible for and shall pay prior to delinquency all such taxes and assessments levied against the Buildings. Upon request by Landlord, Tenant shall furnish Landlord with satisfactory evidence of Tenant's payment thereof. To the extent the Buildings, the Property and/or the Improvements are taxed or assessed to Landlord following the applicable Rent Commencement Dates, such real property taxes and assessments shall constitute Operating Expenses (as that term is defined in Section 9.2 of this Lease) and shall be paid in accordance with the provisions of Article 9 of this Lease.

9. OPERATING EXPENSES

9.1 Liability For Operating Expenses**.**

(a) Tenant shall pay to Landlord, at the time and in the manner hereinafter set forth, as additional rental, Tenant's Operating Cost Share (as hereinafter defined) of the Operating Expenses defined in Section 9.2, subject to adjustment pursuant to Sections 9.1(b) and (c) when applicable. The parties presently anticipate that the percentage amount constituting Tenant's applicable share of Operating Expenses ("Tenant's Operating Cost Share"), except as otherwise provided herein, will be [REDACTED] as of the Phase I Rent Commencement Date, [REDACTED] as of the Phase IIA Rent Commencement Date, [REDACTED] as of the Phase IIB Rent as of Commencement Date [REDACTED] of the Phase IIC Rent Commencement Date and [REDACTED] of the Phase IID Rent Commencement Date. Notwithstanding the foregoing and the provisions of Section 9.1(c), with respect to liability insurance premiums (except to the extent separately and specifically allocable to a Building, in which event Tenant's Operating Cost Share with respect thereto shall be [REDACTED] for the Phase IA Building and [REDACTED] the Phase IB Building and [REDACTED] for the Phase II Building), the land component of real property taxes and assessments, common area lighting and maintenance expenses, and other similar expenses that are incurred or measured on a Center-wide basis (rather than' being clearly and reasonably allocable or attributable to a specific Building alone, in which event Tenant's Operating Cost Share with respect thereto shall be [REDACTED] for the Phase IA Building and the

Phase IB Building and [REDACTED] for the Phase II Building) or that are incurred with respect to common area facilities, notwithstanding any other provisions of this Article 9, Tenant's Operating Cost Share with respect to such Center-wide and/or common area expenses from and after each respective Rent Commencement Date, regardless of the status of construction and occupancy of the other contemplated buildings in the Center, shall be equal to the percentage amount which is equivalent to a fraction, the numerator of which is the actual square footage of the Building(s) as to which a Rent Commencement Date has then occurred, as determined on the basis of measurement set forth in Section 1.1(c) hereof, and the denominator of which is the sum of the actual square footage of all then completed buildings in the Center plus the proposed square footage (as reflected in Landlord's entitlements for the Property) of all not yet completed buildings that Landlord proposes to construct in the Center (excluding the proposed child care facility and proposed stand-alone restaurant as hereinafter set forth), in each case as determined on the basis of measurement set forth in Section 1.1(c) hereof, consistently applied; provided, however, that the adjusted Tenant's Operating Cost Share determined pursuant to this sentence shall be further adjusted from time to time to reflect (x) any difference between the actual square footage of any additional buildings completed in the Center from time to time and the proposed square footage at which such additional buildings were previously included in the application of the foregoing formula, and (y) any increase or decrease in the aggregate square footage of the buildings that Landlord proposes to construct in the Center as part of the initial phased development of the Center (such as, but not limited to, any decision by Landlord to defer indefinitely, beyond the normal and reasonable phasing of the Center, the construction of any of the planned buildings in the Center and/or any action by governmental authorities to reduce the aggregate square footage of the buildings that Landlord is entitled to construct in the Center pursuant to Landlord's entitlements as amended from time to time), provided that in no event shall Tenant's Operating Share be calculated with a denominator of less than [REDACTED] (except that such minimum denominator shall be reduced to the extent any square footage of existing or proposed buildings in the Center from time to time is removed from commercial use entirely, other than on a temporary or interim basis, as a result of casualty or condemnation, or to the extent any buildings in the Center from time to time cease to be operated and accounted for on an integrated basis with the rest of the Center for Operating Expense purposes as a result of the sale of a portion of the Property or otherwise).

(b) Tenant's Operating Cost Share as specified in Section 9.1(a) as of the Phase I Rent Commencement Date is based upon an estimated area of [REDACTED] square feet for the Phase IA Building, an estimated area of [REDACTED] square feet for the Phase IB Building (not including the Connector Bridge contemplated in Section 1.1(a), but if such Connector Bridge is in fact constructed, the square footage thereof shall be included in the square footage of the Phase IB Building for purposes of alt calculations of Tenant's Operating Cost Share under this Article 9) and an aggregate estimated area of [REDACTED] square feet for all of the buildings that Landlord presently expects to have in fully constructed and occupied condition on the Property at the Phase I Rent Commencement Date; Tenant's Operating Cost Share as specified in Section 9.1(a) as of the Phase IIA Rent Commencement Date is based upon an estimated area of [REDACTED] square feet for Phase IIA and upon an aggregate estimated area [REDACTED] square feet for all of the buildings that Landlord presently expects to have in fully constructed and occupied condition on the Property at the Phase IIA Rent Commencement Date; Tenant's Operating Cost Share as specified in Section 9.1(a) as of the Phase IIB Rent Commencement Date is based upon an estimated area of [REDACTED] square feet for Phase IIB and upon an aggregate estimated area of [REDACTED] square feet for all of the buildings that Landlord presently expects to have in fully constructed and occupied condition on the Property at the Phase IIB Rent Commencement Date; Tenant's Operating Cost Share as specified in Section 9.1(a) as of the Phase IIC Rent Commencement Date is based upon an estimated area of [REDACTED] square feet for Phase IIC and upon an aggregate estimated area of [REDACTED] square feet for all of the buildings that Landlord presently expects to have in fully constructed and occupied condition on the Property at the Phase IIC Rent Commencement Date; and Tenant's Operating Cost Share as specified in Section 9.1(a) as of the Phase IID Rent Commencement Date is based upon an estimated area of [REDACTED] Square feet for Phase IID and upon an aggregate estimated area of [REDACTED] square feet for all of the buildings that Landlord presently expects to have in fully constructed and occupied condition on the Property at the Phase IID Rent Commencement Date. If the actual area of the respective Buildings (when completed) or phases thereof (in the case of the Phase II Building) or of the other buildings existing from time to time in the Center, as determined on the basis of measurement set forth in Section 1.1(c) hereof (which basis of measurement shall be applied consistently for all buildings in the Center), differs from the assumed numbers set forth above

(including, but not limited to, any such difference arising from the completion and occupancy of buildings in the Center before or after the respective Rent Commencement Dates hereunder, as contemplated in Section 9.1(c) below, and/or from the construction of the Connector Bridge contemplated in Section 1.1(a), if applicable), then Tenant's Operating Cost Share shall be adjusted to reflect the actual areas so determined as they exist from time to time. In no event, however, shall the square footage of any child care facility or stand-alone restaurant on the Property be included as part of the square footage of buildings on the Property in calculating Tenant's Operating Cost Share, nor shall any costs or expenses relating to the proposed child care facility and proposed stand-alone restaurant on the Property be included in Operating Expenses as hereinafter defined. In the case of expenses that are incurred or measured on a Center-wide basis or that are incurred with respect to Common Area facilities, Landlord shall allocate a reasonable share of such expenses to the proposed child care facility and proposed stand-alone restaurant on the Property and shall exclude such share from Operating Expenses pursuant to the preceding sentence.

(c) As Landlord constructs additional buildings in the Center (other than those described in the first sentence of Section 9.1(b) as already being taken into account in the estimated figures set forth above), Tenant's Operating Cost Share shall be adjusted from time to time to be equal to the percentage determined by dividing the gross square footage of the Building(s) as to which a Rent Commencement Date has occurred hereunder, as they then exist, by the gross square footage of all buildings located in the Center (subject to the exclusion set forth in Section 9.1(b) with respect to the proposed child care facility and proposed restaurant). In determining such percentage, a building shall be taken into account from and after the date on which a tenant first enters into possession of the building or a portion thereof; the determination of the gross square footage of any such building by Landlord's architect in a manner consistent with the manner in which other buildings in the Center are measured shall be final and binding upon the parties; and costs and expenses relating to a new building shall be taken into account as Operating Expenses under this Article 9 only from and after the date on which the square footage of the building is taken into account in determining Tenant's Operating Cost Share under the criteria set forth in this paragraph.

9.2 Definition Of Operating Expenses**.**

(a) Subject to the exclusions and provisions set forth in this Article 9, the term "Operating Expenses" shall mean the total costs and expenses incurred by or allocable to Landlord for management, operation and maintenance of the Improvements, the Property and the Center, including, without limitation, costs and expenses of (i) insurance (including, but not limited to, earthquake insurance and environmental insurance), property management (provided that Tenant's allocable share of property management fees for any applicable period during the term of this Lease shall not exceed a maximum amount equal to one and one half percent (1.5%) of the Minimum Rental payable hereunder with respect to such period), landscaping, and the operation, repair and maintenance of buildings and Common Areas; (ii) all utilities and services; (iii) real and personal property taxes and assessments or substitutes therefor levied or assessed against the Center or any part thereof, including (but not limited to) any possessory interest, use, business, license or other taxes or fees, any taxes imposed directly on rents or services, any assessments or charges for police or fire protection, housing, transit, open space, street or sidewalk construction or maintenance or other similar services from time to time by any governmental or quasi-governmental entity, and any other new taxes on landlords in addition to taxes now in effect; (iv) supplies, equipment, utilities and tools used in management, operation and maintenance of the Center; (v) capital improvements to the Property, the Improvements or the Center, amortized over their useful lives as determined by Landlord's accountants consistent with generally accepted accounting principles and/or tax accounting principles, (aa) which reduce or will cause future reduction of other items of Operating Expenses for which Tenant is otherwise required to contribute or (bb) which are required by law, ordinance, regulation or order of any governmental authority; and (vi) any other costs (including, but not limited to, any parking or utilities fees or surcharges not otherwise specifically addressed elsewhere in this Lease) allocable to or paid by Landlord, as owner of the Center or Improvements, pursuant to any applicable laws, ordinances, regulations or orders of any governmental or quasi-governmental authority or pursuant to the terms of any declarations of covenants, conditions and restrictions now or hereafter affecting the Center or any other property over which Tenant has non-exclusive usage rights as contemplated in Section 1.1(b) hereof. Operating Expenses shall not include any costs attributable to the work for which Landlord is required to pay under Article 5 or the Workletter, nor any costs attributable to the initial construction of buildings or

Common Area improvements in the Center, nor any costs attributable to buildings the square footage of which is not taken into account in determining Tenant's Operating Cost Share under Section 9.1 for the applicable period. The distinction between items of ordinary operating maintenance and repair and items of a capital nature shall be made in accordance with generally accepted accounting principles applied on a consistent basis or in accordance with tax accounting principles, as determined in good faith by Landlord's accountants.

(b) Notwithstanding any other provisions of this Section 9.2, the following shall not be included within Operating Expenses: (i) rent paid to any ground lessor; (ii) the cost of constructing tenant improvements for any other tenant of a Building or the Center; (iii) the costs of special services, goods or materials provided to any other tenant of a Building or the Center and not offered or made available to Tenant; (iv) repairs covered by proceeds of insurance or from funds provided by Tenant or any other tenant of the Center, or as to which any, other tenant of the Center is obligated to make such repairs or to pay the cost thereof; (v) legal fees, advertising costs, commissions or other related expenses incurred by Landlord in connection with the leasing of space to individual tenants of the Center; (vi) repairs, alterations, additions, improvements or replacements needed to rectify or correct any defects in the original design, materials or workmanship of a Building, the Center or the Common Areas; (vii) damage and repairs necessitated by the negligence or willful misconduct of Landlord or of Landlord's employees, contractors or agents; (viii) Landlord's general overhead expenses not related to the Buildings or the Center; (ix) legal fees, accountants' fees and other expenses incurred in connection with disputes with tenants or other occupants of the Center, or in connection with the enforcement of the terms of any leases with tenants or the defense of Landlord's title to or interest in the Center or any part thereof; (x) costs incurred due to a violation by Landlord or any other tenant of the Center of the terms and conditions of any lease; (xi) costs of any service provided to Tenant or to other occupants of a Building or the Center for which Landlord is reimbursed other than through recovery of Operating Expenses; (xii) personal property taxes due and payable by any other tenant of the Center; (xiii) costs incurred by Landlord pursuant to Article 17 of this Lease in connection with an event of casualty or condemnation; (xiv) depreciation on buildings; (xv) interest; (xvi) capital items (other than as expressly provided above); (xvii) payments on debt (principal or interest); (xviii) legal fees; (xix) amounts paid to any affiliates of Landlord (i.e., persons or companies controlling, controlled by or under common control with Landlord) for provision of services, except to the extent that the costs of such services do not exceed a reasonable and competitive rate for such services in the market for provision of comparable commercial services in the San Francisco Bay Area; (xx) any bad debt losses, rent losses or reserves for bad debt; (xxi) any costs relating to the creation, maintenance and operation of and the internal accounting for the legal entity which constitutes the landlord hereunder; and (xxii) any late fees or penalties or similar fees resulting from delinquent payment by Landlord of any taxes, fees or contract amounts. Moreover, Operating Expenses shall not include any expenses of operation and maintenance of the parking structure and parking areas on the Property or of measures undertaken by Landlord pursuant to the TDMP (as defined in Section 21.20(a)), except to the extent such expenses in the aggregate exceed, for the applicable period, aggregate parking revenues received by Landlord with respect to that period from tenants under provisions comparable to Section 21.20(b) hereof and from any other users paying hourly, daily, monthly or other fees for the use of such parking structure and/or parking areas from time to time. Landlord presently estimates that parking-related revenues will generally exceed expenses of operation and maintenance of the parking structure and parking areas on the Property, leaving a portion of such revenues available to support TDMP measures undertaken by Landlord as contemplated in the preceding sentence.

9.3 Determination and Payment of Operating Expenses. On or before the Phase I Rent Commencement Date and during the last month of each calendar year of the term of this Lease ("Lease Year"), or as soon thereafter as practical, Landlord shall provide Tenant notice of Landlord's estimate of the Operating Expenses for the ensuing Lease Year or applicable portion thereof. On or before the first day of each month during the ensuing Lease Year or applicable portion thereof, beginning on the Phase I Rent Commencement Date, Tenant shall pay to Landlord Tenant's Operating Cost Share of the portion of such estimated Operating Expenses allocable (on a prorata basis) to such month; provided, however, that if such notice is not given in the last month of a Lease Year, Tenant shall continue to pay on the basis of the prior year's estimate, if any, until the month after such notice is given. If at any time or times it appears to Landlord that the actual Operating Expenses will vary from Landlord's estimate by more than five percent (5%), Landlord may, by notice to Tenant, revise its estimate for such year and

subsequent payments by Tenant for such year shall be based upon such revised estimate. In the event of any subsequent rebate, refund, adjustment or surcharge with respect to any item of Operating Expenses allocable to any portion of the term of this Lease, the amount of such rebate, refund, adjustment or surcharge shall be for Tenant's benefit or account.

9.4 Final Accounting For Lease Year**.**

(a) Within ninety (90) days after the close of each Lease Year, or as soon after such 90-day period as practicable, Landlord shall deliver to Tenant a statement of Tenant's Operating Cost Share of the Operating Expenses for such Lease Year prepared by Landlord from Landlord's books and records, which statement shall be final and binding on Landlord and Tenant (except as provided in Section 9.4(b)). If on the basis of such statement Tenant owes an amount that is more or less than the estimated payments for such Lease Year previously made by Tenant, Tenant or Landlord, as the case may be, shall pay the deficiency to the other party within thirty (30) days after delivery of the statement. Failure or inability of Landlord to deliver the annual statement within such ninety (90) day period shall not impair or constitute a waiver of Tenant's obligation to pay Operating Expenses, or cause Landlord to incur any liability for damages.

(b) At any time within four (4) months after receipt of Landlord's annual statement of Operating Expenses as contemplated in Section 9.4(a), Tenant shall be entitled, upon reasonable written notice to Landlord and during normal business hours at Landlord's office or such other places as Landlord shall designate, to inspect and examine those books and records of Landlord relating to the determination and payment of Operating Expenses relating to the immediately preceding Lease Year covered by such annual, statement or, if Tenant so elects by written notice to Landlord, to request an independent audit of such books and records. The independent audit of the books and records shall be conducted by a certified public accountant reasonably acceptable to both Landlord and Tenant or, if the parties are unable to agree, by a certified public accountant appointed by the Presiding Judge of the San Mateo County Superior Court upon the application of either Landlord or Tenant (with notice to the other party). In either event, such certified public accountant shall be one who is not then employed in any capacity by Landlord or Tenant or by any of their respective affiliates. The audit shall be limited to the determination of the amount of Operating Expenses for the subject Lease Year, and shall be based on generally accepted accounting principles and tax accounting principles, consistently applied. If it is determined, by mutual agreement of Landlord and Tenant or by independent audit, that the amount of Operating Expenses billed to or paid by Tenant for the applicable Lease Year was incorrect, then the appropriate party shall pay to the other party the deficiency or overpayment, as applicable, within thirty (30) days after the final determination of such deficiency or overpayment. All costs and expenses of the audit shall be paid by Tenant unless the audit shows that Landlord overstated Operating Expenses for the subject Lease Year by more than five percent (5%), in which case Landlord shall pay all costs and expenses of the audit. Each party agrees to maintain the confidentiality of the findings of any audit in accordance with the provisions of this Section 9.4.

9.5 Proration. If a Rent Commencement Date falls on a day other than the first day of a Lease Year or if this Lease terminates on a day other than the last day of a Lease Year, then the amount of Operating Expenses payable by Tenant with respect to such first or last partial Lease Year shall be prorated on the basis which the number of days during such Lease Year in which this Lease is in effect bears to 365. The termination of this Lease shall not affect the obligations of Landlord and Tenant pursuant to Section 9.4 to be performed after such termination.

10. UTILITIES

10.1 Payment. Commencing with the applicable Rent Commencement Date for each Building and thereafter throughout the term of this Lease, Tenant shall pay, before delinquency, all charges for water, gas, heat, light, electricity, power, sewer, telephone, alarm system, janitorial and other services or utilities supplied to or consumed in or with respect to such Building (other than any separately metered costs for water, electricity or other services or utilities furnished with respect to the Common Areas, which costs shall be paid by Landlord and shall constitute Operating Expenses under Section 9.2 hereof), including any taxes on such services and utilities. It is the intention of the parties that all such services and utilities shall be separately metered to each Building and, in the case of the Phase II Building, to Tenant's

premises in such Building. In the event that any of such services or utilities supplied to any Building are not separately metered (or, in the case of the Phase II Building, are not separately metered to Tenant's premises in that Building), then the amount thereof shall be an item of Operating Expenses allocable to the specific Building and shall be allocated to and paid by the tenants of that specific Building as provided in Article 9.

10.2 Interruption. There shall be no abatement of rent or other charges required to be paid hereunder and Landlord shall not be liable in damages or otherwise for interruption or failure of any service or utility furnished to or used with respect to any Building or the Property because of accident, making of repairs, alterations or improvements, severe weather, difficulty or inability in obtaining services or supplies, labor difficulties or any other cause unless the interruption or failure of a service or utility is caused by the negligence or willful misconduct of Landlord, its agents, employees or contractors, in which case all rent hereunder shall be abated for each Building for each day that such service or utility is not available at such Building as a result of such negligence or willful misconduct, beginning on the first business day following the day on which the unavailability of such service or utility at the applicable Building commences, and Landlord shall be liable for Tenant's actual damages (but not lost profits or other consequential damages) as a result of the unavailability of such service or utility caused by such negligence or willful misconduct. Notwithstanding the foregoing Landlord agrees that except in case of emergency, it will not voluntarily interrupt, shut down, or otherwise interfere with utilities or services to any Building between the hours of 8:00 a.m. and 5:00 p.m. (excluding weekends and holidays) for any reason, including without limitation, development of other buildings and improvements on the Property (but excluding any necessary interruption or shutdown of utilities or services in connection with the construction of any of the Buildings themselves). In the event Landlord violates the foregoing prohibition, all rent hereunder for each Building shall be abated for each day any service or utility is not available at such Building as a result of Landlord's voluntary interruption, shutdown or interference therewith and Tenant shall have the right to exercise all rights and remedies available at law or in equity for such violation, including the right to enjoin Landlord's actions which are the cause of such interruption, shut down or interference. In the event of any interruption or shutdown of utilities or services by Landlord under emergency circumstances, Landlord shall use reasonable efforts to provide Tenant with oral notice of such interruption or shutdown as promptly as the circumstances reasonably permit.

11. ALTERATIONS; SIGNS

11.1 Right To Make Alterations. Tenant shall make no alterations, additions or improvements to the Property without the prior written consent of Landlord, which consent shall not be unreasonably withheld or delayed, except that Tenant shall not be required to obtain such consent for interior non-structural alterations costing less than Fifty Thousand Dollars ($50,000.00) for any single project (i.e., any single item of alterations or set of related alterations in a Building) and less than One Hundred Thousand Dollars ($100,000.00) in the aggregate with respect to the applicable Building, on a Building by Building basis, during any twelve (12) month period. All such alterations, additions and improvements shall be completed with due diligence in a first-class workmanlike manner, in compliance with plans and specifications approved in writing by Landlord and in compliance with all applicable laws, ordinances, rules and regulations, and to the extent Landlord's consent is not otherwise required hereunder for such alterations, additions or improvements, Tenant shall give prompt written notice thereof to Landlord. Tenant shall cause any contractors engaged by Tenant for work on the Property to maintain public liability and property damage insurance, and other customary insurance, with such terms and in such amounts as Landlord may reasonably require, naming as additional insureds Landlord and any of its members, partners, shareholders, property managers, lenders, agents and employees designated by Landlord for this purpose, and shall furnish Landlord with certificates of insurance or other evidence that such coverage is in effect. Notwithstanding any other provisions of this Section 11.1, under no circumstances shall Tenant make any structural alterations or improvements, or any substantial changes to the roof or substantial equipment installations on the roof, or any substantial changes or alterations to building systems, without Landlord's prior written consent.

11.2 Title To Alterations. All alterations, additions and improvements installed in, on or about the Buildings or the Property shall become part of the Improvements and the property of Landlord, unless Landlord elects to require Tenant to remove the same upon the termination of this Lease; provided, however, that the foregoing shall not apply to (i) any Tenant Improvements, (ii) any other alterations, additions or improvements or (iii) Tenant's movable furniture, equipment and trade fixtures, to the extent Tenant can demonstrate that any such items described in the preceding clauses (i) through (iii) were acquired and installed by Tenant at Tenant's sole expense, without any use of funds from the Tenant Improvement Allowance under the Workletter, and are not an integral part of the applicable Building's structure, interior architectural improvements, HVAC, plumbing or electrical systems or other standard operating systems. All of such items described in clauses (i) through (iii) of the preceding sentence and meeting the requirements set forth following clause (iii) in the preceding sentence (in all events including, but not limited to, lab benches, fume hoods and portable cold rooms, to the extent they meet the requirements set forth following clause (iii) in the preceding sentence) may (and, if duly elected by Landlord hereunder, shall) be removed by Tenant upon termination of this Lease. Tenant shall promptly repair any damage caused by its removal of any such improvements from time to time. Notwithstanding any other provisions of this Article 11, however, under no circumstances shall Tenant have any right to remove from the Buildings or the Property, at the expiration or termination of this Lease, any lab benches, fume hoods, cold rooms or other similar improvements and equipment installed in the Buildings with use of funds from the Tenant Improvement Allowance. Tenant shall also be responsible, to the extent provided in Section 12.2(c) hereof, for the cost of removal of the Connector Bridge at the expiration or termination of this Lease if such Connector Bridge is constructed as contemplated in Section 1.1(a) hereof. Notwithstanding any other provisions of this Article 11, (x) it is the intention of the parties that Landlord shall be entitled to claim all tax attributes associated with alterations, additions, improvements and equipment constructed or installed by Tenant or Landlord with funds provided by Landlord pursuant to the Tenant Improvement Allowance; and (y) it is the intention of the parties that Tenant shall be entitled to claim, during the term of this Lease, all tax attributes associated with alterations, additions, improvements and equipment constructed or installed by Tenant with Tenant's own funds (and without any payment or reimbursement by Landlord pursuant to the Tenant Improvement Allowance), despite the fact that many items described in this clause (y) may be characterized in this Section 11.2 as becoming Landlord's property upon installation, in recognition of the fact that Tenant will have installed and paid for such items, will have the right of possession and use of such items during the term of this Lease and will have the obligation to pay (directly or indirectly) property taxes on such items, carry insurance on such items and bear the risk of loss with respect to such items under Article 17 hereof. If and to the extent it becomes necessary, in implementation of the foregoing intentions, to identify (either specifically or on a percentage basis, as may be required under applicable tax laws) which alterations, additions, improvements and equipment constructed as part of Tenant's Work under the Workletter have been funded through the Tenant Improvement Allowance and which have been constructed or installed with Tenant's own funds, Landlord and Tenant agree to cooperate reasonably and in good faith to make such an identification by mutual agreement.

11.3 Tenant Trade Fixtures. Notwithstanding the provisions of Sections 11.1 and 11.2, but subject to the third sentence of Section 11.2 and to Section 11.5 (which shall be controlling in the case of signs, logos and insignia), Tenant may install, remove and reinstall trade fixtures without Landlord's prior written consent, except that installation and removal of any trade fixtures which are affixed to the Buildings or the Property or which affect the exterior or structural portions of the Buildings or the building systems shall require Landlord's written approval. Tenant shall immediately repair any damage caused by installation and removal of trade fixtures under this Section 11.3.

11.4 No Liens. Tenant shall at all times keep the Buildings and the Property free from all liens and claims of any contractors, subcontractors, materialmen, suppliers or any other parties employed either directly or indirectly by Tenant in construction work on the Buildings or the Property. Tenant may contest any claim of lien, but only if, prior to such contest, Tenant either (i) posts security in the amount of the claim, plus estimated costs and interest, or (ii) records a bond of a responsible corporate surety in such amount as may be required to release the lien from the Buildings and the Property. Tenant shall indemnify, defend and hold Landlord harmless against any and all liability, loss, damage, cost and other expenses, including, without limitation, reasonable attorneys' fees, arising out of claims of any lien for work performed or materials or supplies furnished at the request of Tenant or persons claiming under Tenant.

11.5 Signs. Tenant shall have the right to display its corporate name, logo and/or insignia with lighted signage on the exterior of the Buildings and in front of the entrance to each Building, subject to (a) Landlord's prior approval as to location, size, design and composition (which approval shall not be unreasonably withheld or delayed), (b) the sign criteria established for the Center from time to time and (c) all restrictions and requirements of applicable law and of any covenants, conditions and restrictions or other written agreements now or hereafter applicable to the Property. Tenant shall immediately repair any damage caused by installation and removal of signs under this Section 11.5 from time to time. In the event Landlord installs at the Project any monument sign(s) on which identification signage for any individual tenants is included, Tenant shall be entitled to have identification signage on such monument sign(s) on a basis comparable to that made available to any other tenants.

12. MAINTENANCE AND REPAIRS

12.1 Landlord's Work**.**

(a) Landlord shall repair and maintain or cause to be repaired and maintained the Common Areas of the Center, the roofs (structural portions only), exterior walls and other structural portions of the Buildings, any demising walls between Tenant's portion of the Phase II Building and the retail portion of the Phase II Building (other than painting, minor surface damage and other cosmetic matters affecting only Tenant's side of any such demising walls), and any building systems that serve, in common, both Tenant's portion of the Phase II Building and the retail portion of the Phase II Building. The cost of all work performed by Landlord under this Section 12.1 shall be an Operating Expense hereunder, except to the extent such work (i) is required due to the negligence of Landlord, (ii) is a capital expense not includible as an Operating Expense under Section 9.2 hereof, or (iii) is required due to the negligence or willful misconduct of Tenant or its agents, employees or invitees (in which event Tenant shall bear the full cost of such work pursuant to the indemnification provided in Section 14.6 hereof, subject to the release set forth in Section 14.4 hereof). Tenant knowingly and voluntarily waives the right to make repairs at Landlord's expense, except to the extent expressly set forth in Section 12.1(b), or to offset the cost thereof against rent, under any law, statute, regulation or ordinance now or hereafter in effect.

(b) If Landlord fails to perform any repairs or maintenance required to be performed by Landlord on any of the Buildings under Section 12.1(a) and such failure continues for thirty (30) days or more after Tenant gives Landlord written notice of such failure (or, if such repairs or maintenance cannot reasonably be performed within such 30-day period, then if Landlord fails to commence performance within such 30-day period and thereafter to pursue such performance diligently to completion), then except as otherwise expressly excluded herein. Tenant shall have the right to perform such repairs or maintenance and Landlord shall reimburse Tenant for the reasonable cost thereof within fifteen (15) days after written notice from Tenant of the completion and cost of such work, accompanied by copies of invoices or other reasonable supporting documentation. Under no circumstances, however, shall Tenant have any right to offset the cost of any such work against rent or other charges falling due from time to time under this Lease. Moreover, under no circumstances shall this Section 12.1(b) authorize Tenant to perform any of Landlord's repairs or maintenance obligations (x) in the Phase II Building, except to the extent the conditions requiring repair or maintenance affect only Tenant's portion of the Phase II Building and not the retail portion of the Phase II Building, or (y) in the Common Areas of the Property.

12.2 Tenant's Obligation For Maintenance**.**

(a) Good Order, Condition And Repair. Except as provided in Section 12.1 hereof, Tenant at its sole cost and expense shall keep and maintain in good and sanitary order, condition and repair the Buildings (from and after the applicable Rent Commencement Date for each Phase I Building and for each phase of the Phase II Building) and every part thereof, wherever located, including but not limited to the roofs (non-structural portions only), signs, interiors, ceilings, electrical systems, plumbing systems, telephone and communications systems of the Buildings, the HVAC equipment and related mechanical systems serving the Buildings (for which equipment and systems Tenant shall enter into a service contract with a person or entity designated or approved by Landlord), all doors, door checks, windows, plate glass, door fronts, exposed plumbing and sewage and other utility facilities, fixtures, lighting, wall surfaces, floor surfaces and ceiling surfaces of the Buildings and all other interior repairs, foreseen and

unforeseen, with respect to the Buildings, as required; provided, however, that (x) Tenant's ordinary repair obligation with respect to any demising walls between Tenant's portion of the Phase II Building and the retail portion of the Phase II Building shall be limited to painting, minor surface damage and other cosmetic matters affecting only Tenant's side of any such demising walls, and (y) Tenant's ordinary repair obligation with respect to building systems in the Phase II Building shall be limited to building systems or portions thereof that serve only Tenant's portion of the Phase II Building and shall not include building systems or portions thereof which serve, in common, both Tenant's portion of the Phase II Building and the retail portion of the Phase II Building.

(b) Landlord's Remedy. If Tenant, after notice from Landlord, fails to make or perform promptly any repairs or maintenance which are the obligation of Tenant hereunder, Landlord shall have the right, but shall not be required, to enter the applicable Building(s) and make the repairs or perform the maintenance necessary to restore the applicable Building(s) to good and sanitary order, condition and repair. Immediately on demand from Landlord, the cost of such repairs shall be due and payable by Tenant to Landlord.

(c) Condition Upon Surrender; Removal of Connector Bridge. At the expiration or sooner termination of this Lease, Tenant shall surrender the Buildings and the Improvements, including any additions, alterations and improvements thereto, broom clean, in good and sanitary order, condition and repair, ordinary wear and tear and casualty damages (the latter of which shall be governed by the provisions of Article 17 hereof) excepted, first, however, removing all goods and effects of Tenant and all and fixtures and items required or permitted to be removed pursuant to this Lease (including, but not limited to, any such removal required as a result of an election duly made by Landlord to require such removal as contemplated in Section 11.2), and repairing any damage caused by such removal. In addition, notwithstanding any other provisions of this Lease, if the Connector Bridge is constructed as contemplated in Section 1.1(a) hereof and if Landlord notifies Tenant in writing, prior to or within six (6) months after the expiration or sooner termination of this Lease, that Landlord wishes, in its sole discretion, to remove the Connector Bridge following the expiration or sooner termination of this Lease in order to facilitate the re-leasing of the Phase I Buildings, then Tenant shall be responsible for all costs reasonably incurred by Landlord in connection with the removal of the Connector Bridge and the restoration and repair of the areas where the Connector Bridge was attached to the respective Phase I Buildings, and Tenant shall reimburse the amount of such costs to Landlord from time to time within twenty (20) days after receipt of Landlord's written request(s) for reimbursement, accompanied by supporting documentation evidencing, in reasonable detail, the costs for which such reimbursement is requested. Tenant expressly waives any and all interest in any personal property and trade fixtures not removed from the Property by Tenant at the expiration or termination of this Lease, agrees that any such personal property and trade fixtures may, at Landlord's election, be deemed to have been abandoned by Tenant, and authorizes Landlord (at its election and without prejudice to any other remedies under this Lease or under applicable law) to remove and either retain, store or dispose of such property at Tenant's cost and expense, and Tenant waives all claims against Landlord for any damages resulting from any such removal, storage, retention or disposal.

13. USE OF PROPERTY

13.1 Permitted Use. Subject to Sections 13.3 and 13.4 hereof, Tenant shall use the Buildings solely as laboratory and research and development facilities, including (but not limited to) wet chemistry and biology labs, clean rooms, storage and use of toxic and radioactive materials incidental to such laboratory, research and development activities (subject to the provisions of Section 13.6 hereof), storage and use of laboratory animals, administrative offices, and other lawful purposes related to or incidental to such research and development use (subject in each case to receipt of alt necessary approvals from the City of South San Francisco and other governmental agencies having jurisdiction over the Buildings), and for no other purpose without Landlord's written consent (not to be unreasonably withheld or delayed).

13.2 [Omitted.]

13.3 No Nuisance. Tenant shall not use the Buildings or the Property for or carry on or permit upon the Property or any part thereof any offensive, noisy or dangerous trade, business, manufacture, occupation, odor or fumes, or any nuisance or anything against public policy, nor interfere with the rights or business of Landlord in the Buildings or the Property, nor commit or allow to be committed any waste in, on or about the Property. Tenant shall not do or permit anything to be done in or about the Property, nor bring nor keep anything therein, which will in any way cause the Property to be uninsurable with respect to the insurance required by this Lease or with respect to standard fire and extended coverage insurance with vandalism, malicious mischief and riot endorsements.

13.4 Compliance With Laws**.**

(a) Tenant shall not use the Buildings or the Property, or permit the Buildings or the Property to be used, in whole or in part for any purpose or use that is in violation of any applicable laws, ordinances, regulations or rules of any governmental agency or public authority. Tenant shall keep the Buildings and the Improvements equipped with all safety appliances required by law, ordinance or insurance on the Property, or any order or regulation of any public authority, because of Tenant's particular use of the Property. Tenant shall procure all licenses and permits required for Tenant's use of the Property. Tenant shall use the Property in strict accordance with all applicable ordinances, rules, laws and regulations and shall comply with all requirements of all governmental authorities now in force or which may hereafter be in force pertaining to the use of the Property by Tenant, including, without limitation, regulations applicable to noise, water, soil and air pollution, and making such nonstructural alterations and additions thereto as may be required from time to time by such laws, ordinances, rules, regulations and requirements of governmental authorities or insurers of the Property (collectively, "Requirements") because of Tenant's construction of improvements or other particular use of the Property. Any structural alterations or additions required from time to time by applicable Requirements because of Tenant's construction of improvements in the Buildings or other particular use of the Property shall, at Landlord's election, either (i) be made by Tenant, at Tenant's sole cost and expense, in accordance with the procedures and standards set forth in Section 11.1 for alterations by Tenant, or (ii) be made by Landlord at Tenant's sole cost and expense, in which event Tenant shall pay to Landlord as additional rent, within ten (10) days after demand by Landlord, an amount equal to all reasonable costs incurred by Landlord in connection with such alterations or additions. The judgment of any court, or the admission by Tenant in any proceeding against Tenant, that Tenant has violated any law, statute, ordinance or governmental rule, regulation or requirement shall be conclusive of such violation as between Landlord and Tenant.

(b) In compliance with requirements imposed upon Landlord by an Owner Participation Agreement between Landlord and The Redevelopment Agency of the City of South San Francisco, Tenant hereby agrees to and accepts the following provision:

> "Tenant herein covenants by and for itself and its successors and assigns, and all persons claiming under or through it, and this Lease is made and accepted upon and subject to the conditions that there shall be no discrimination against or segregation of any person or group of persons on account of race, color, religion, creed, sex, marital status, ancestry or national origin in the leasing, subleasing, transferring, use, occupancy, tenure or enjoyment of the property herein leased, nor shall Tenant or any person claiming under or through it establish or permit any such practice or practices of discrimination or segregation with reference to the selection, location, number, use or occupancy of tenants, lessees, sublessees, subtenants or vendees in the property herein leased."

13.5 Liquidation Sales. Tenant shall not conduct or permit to be conducted any auction, bankruptcy sale, liquidation sale, or going out of business sale, in, upon or about the Property, whether said auction or sale be voluntary, involuntary or pursuant to any assignment for the benefit of creditors, or pursuant to any bankruptcy or other insolvency proceeding.

13.6 Environmental Matters**.**

(a) For purposes of this Section, "hazardous substance" shall mean the substances included within the definitions of the term "hazardous substance" under (i) the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq., and the regulations promulgated thereunder, as amended, (ii) the California Carpenter-Presley-Tanner Hazardous Substance Account Act, California Health & Safety Code §§ 25300 et seq., and regulations promulgated thereunder, as amended, (iii) the

Hazardous Materials Release Response Plans and Inventory Act, California Heath & Safety Code §§ 25500 et seq., and regulations promulgated thereunder, as amended, and (iv) petroleum; "hazardous waste" shall mean (i) any waste listed as or meeting the identified characteristics of a "hazardous waste" under the Resource Conservation and Recovery Act of 1976, 42 U.S.C. §§ 6901 et seq., and regulations promulgated pursuant thereto, as amended (collectively, "RCRA"), (ii) any waste meeting the identified characteristics of "hazardous waste," "extremely hazardous waste" or "restricted hazardous waste" under the California Hazardous Waste Control Law, California Health & Safety Code §§ 25100 et seq., and regulations promulgated pursuant thereto, as amended (collectively, the "CHWCL"), and/or (iii) any waste meeting the identified characteristics of "medical waste" under California Health & Safety Code §§ 25015-25027.8, and regulations promulgated thereunder, as amended; and "hazardous waste facility" shall mean a hazardous waste facility as defined under the CHWCL.

(b) Without limiting the generality of the obligations set forth in Section 13.4 of this Lease:

(i) Tenant shall not cause or permit any hazardous substance or hazardous waste to be brought upon, kept, stored or used in or about the Property without the prior written consent of Landlord, which consent shall not be unreasonably withheld or delayed, except that Tenant, in connection with its permitted use of the Property as provided in Section 13.1, may keep, store and use materials that constitute hazardous substances which are customary for such permitted use, provided such hazardous substances are kept, stored and used in quantities which are customary for such permitted use and are kept, stored and used in full compliance with clauses (ii) and (iii) immediately below.

(ii) Tenant shall comply with all applicable laws, rules, regulations, orders, permits, licenses and operating plans of any governmental authority with respect to the receipt, use, handling, generation, transportation, storage, treatment and/or disposal of hazardous substances or wastes by Tenant or its agents or employees, and Tenant shall provide Landlord with copies of all permits, licenses, registrations and other similar documents that authorize Tenant to conduct any such activities in connection with its authorized use of the Property from time to time.

(iii) Tenant shall not (A) operate on or about the Property any facility required to be permitted or licensed as a hazardous waste facility or for which interim status as such is required, nor (B) store any hazardous wastes on or about the Property for ninety (90) days or more, nor (C) conduct any other activities on or about the Property that could result in the Property being deemed to be a "hazardous waste facility" (including, but not limited to, any storage or treatment of hazardous substances or hazardous wastes which could have such a result), nor (D) store any hazardous wastes on or about the Property in violation of any federal or California laws or in violation of the terms of any federal or California licenses or permits held by Tenant.

(iv) Tenant shall comply with all applicable laws, rules, regulations, orders and permits relating to underground storage tanks installed by Tenant or its agents or employees or at the request of Tenant (including any installation, monitoring, maintenance, closure and/or removal of such tanks) as such tanks are defined in California Health & Safety Code § 25281(x), including, without limitation, complying with California Health & Safety Code §§ 25280-25299.7 and the regulations promulgated thereunder, as amended. Tenant shall furnish to Landlord copies of all registrations and permits issued to or held by Tenant from time to time for any and all underground storage tanks located on or under the Property.

(v) If applicable, Tenant shall provide Landlord in writing the following information and/or documentation at the commencement of this Lease and within sixty (60) days of any change in or addition to the required information and/or documentation (provided, however, that in the case of the materials described in subparagraphs (B), (C) and (E) below, Tenant shall not be required to deliver copies of such materials to Landlord but shall maintain copies of such materials to such extent and for such periods as may be required by applicable law and shall permit Landlord or its representatives to inspect and copy such materials during normal business hours at any time and from time to time upon reasonable notice to Tenant):

(A) A list of all hazardous substances and/or wastes that Tenant receives, uses, handles, generates, transports, stores, treats or disposes of from time to time in connection with its operations on the Property.

(B) All Material Safety Data Sheets ("MSDS's"), if any, required to be completed with respect to operations of Tenant at the Property from time to time in accordance with Title 26, California Code of Regulations § 8-5194 or 42 U.S.C. § 11021, or any amendments thereto, and any Hazardous Materials Inventory Sheets that detail the MSDS's.

(C) All hazardous waste manifests (as defined in Title 26, California Code of Regulations § 22-66481), if any, that Tenant is required to complete from time to time in connection with its operations at the Property.

(D) A copy of any Hazardous Materials Management Plan required from time to time with respect to Tenant's operations at the Property, pursuant to California Health & Safety Code §§ 25500 et seq., and any regulations promulgated thereunder, as amended.

(E) Copies of any Contingency Plans and Emergency Procedures required of Tenant from time to time due to its operations in accordance with Title 26, California Code of Regulations §§ 22-67140 et seq., and any amendments thereto, and copies of any Training Programs and Records required under Title 26, California Code of Regulations, § 22-67105, and any amendments thereto.

(F) Copies of any biennial reports required to be furnished to the California Department of Health Services from time to time relating to hazardous substances or wastes, pursuant to Title 26, California Code of Regulations, § 22-66493, and any amendments thereto.

(G) Copies of all industrial wastewater discharge permits issued to or held by Tenant from time to time in connection with its operations on the Property.

(H) Copies of any other lists or inventories of hazardous substances and/or wastes on or about the Property that Tenant is otherwise required to prepare and file from time to time with any governmental or regulatory authority.

. (vi) Tenant shall secure Landlord's prior written approval for any proposed receipt, storage, possession, use, transfer or disposal of "radioactive materials", or "radiation," as such materials are defined in Title 26, California Code of Regulations § 1730100, and/or any other materials possessing the characteristics of the materials so defined, which approval Landlord may withhold in its sole and absolute discretion; provided, that such approval shall not be required for any radioactive materials (x) for which Tenant has secured prior written approval of the Nuclear Regulatory Commission and delivered to Landlord a copy of such approval (if applicable), or (y) which Tenant is authorized to use pursuant to the terms of a Radioactive Material License (if any) issued by the State of California, provided that Tenant has delivered a copy of such License to Landlord. Tenant, in connection with any such authorized receipt, storage, possession, use, transfer or disposal of radioactive materials or radiation, shall:

(A) Comply with all federal, state and local laws, rules, regulations, orders, licenses and permits issued to or applicable to Tenant with respect to its business operations on the Property;

(B) Maintain, to such extent and for such periods as may be required by applicable law, and permit Landlord or its representatives to inspect during normal business hours at any time and from time to time upon reasonable notice to Tenant, a list of all radioactive materials or radiation received, stored, possessed, used, transferred or disposed of from time to time, to the extent not already disclosed through delivery of a copy of a Nuclear Regulatory Commission approval and/or a California Radioactive Material License with respect thereto as contemplated above; and

(C) Maintain, to such extent and for such periods as may be required by applicable law, and permit Landlord or its representatives to inspect during normal business hours at any time and from time to time upon reasonable notice to Tenant, all licenses. registration materials, inspection reports, governmental orders and permits in connection with the receipt, storage, possession, use, transfer or disposal of radioactive materials or radiation by Tenant or in connection with the operation of Tenant's business on the Property from time to time.

(vii) Tenant shall comply with any and all applicable laws, rules, regulations and orders of any governmental authority with respect to the release into the environment of any hazardous wastes or substances or radiation or radioactive materials by Tenant or its agents or employees. Tenant shall give Landlord immediate verbal notice of any unauthorized release of any such hazardous wastes or substances or radiation or radioactive materials into the environment, and to follow such verbal notice with written notice to Landlord of such release within twenty-four (24) hours of the time at which Tenant became aware of such release.

(viii) Tenant shall indemnify, defend and hold Landlord harmless from and against any and all claims, losses (including, but not limited to, loss of rental income and loss due to business interruption), damages, liabilities, costs, legal fees and expenses of any sort arising out of or relating to (A) any failure by Tenant to comply with any of its obligations under this Section 13.6(b), or (B) any receipt, use handling, generation, transportation, storage, treatment, release and/or disposal of any hazardous substance or waste or any radioactive material or radiation on or about the Property in connection with Tenant's use or occupancy of the Property or as a result of any intentional or negligent acts or omissions of Tenant or of any agent, employee or invitee of Tenant.

(ix) Tenant shall cooperate with Landlord in furnishing Landlord with complete information regarding Tenant's receipt, handling, use, storage, transportation, generation, treatment and/or disposal of any hazardous substances or wastes or radiation or radioactive materials. Upon request, Tenant agrees to grant Landlord reasonable access at reasonable times to the Property to inspect Tenant's receipt, handling, use, storage, transportation, generation, treatment and/or disposal of hazardous substances or wastes or radiation or radioactive materials, without being deemed guilty of any disturbance of Tenant's use or possession and without being liable to Tenant in any manner.

(x) Notwithstanding Landlord's rights of inspection and review under this Section 13.6(b), Landlord shall have no obligation or duty to so inspect or review, and no third party shall be entitled to rely on Landlord to conduct any sort of inspection or review by reason of the provisions of this Section 13.6(b).

(xi) If Tenant or its employees, agents, contractors, vendors, customers or guests receive, handle, use, store, transport, generate, treat and/or dispose of any hazardous substances or wastes or radiation or radioactive materials on or about the Property at any time during the term of this Lease, then within thirty (30) days after termination or expiration of this Lease, Tenant at its sole cost and expense shall obtain and deliver to Landlord an environmental study, performed by an expert reasonably satisfactory to Landlord, evaluating the presence or absence of hazardous substances and wastes, radiation and radioactive materials an and about the Property. Such study shall be based on a reasonable and prudent level of tests and investigations of the Buildings and other appropriate portions of the Property (if any), which tests shall be conducted no earlier than the date of termination or expiration of this Lease. Liability for any remedial actions required or recommended on the basis of such study shall be allocated in accordance with Sections 13.4,13.6,14.6 and other applicable provisions of this Lease.

(c) Landlord shall indemnify, defend and hold Tenant harmless from and against any and all claims, losses, damages, liabilities, costs, legal fees and expenses of any sort arising out of or relating to (i) the presence on the Property of any hazardous substances or wastes or radiation or radioactive materials present on the Property as of the first Rent Commencement Date to occur hereunder (other than as a result of any intentional or negligent acts or omissions of Tenant or of any agent, employee or invitee of Tenant), and/or (ii) any unauthorized release into the environment (including, but not limited to, the Property) of any hazardous substances or wastes or radiation or radioactive materials to the extent such release results from the negligence of or willful misconduct or omission by Landlord or its agents or employees.

(d) In the event of any third-party claims, losses, damages, liabilities, costs, legal fees and expenses of any sort (including, but not limited to, costs incurred with respect to any government-mandated remediation), against either Landlord or Tenant or both, arising out of or relating to (i) the presence on the Property of any hazardous substances or wastes or radiation or radioactive materials not present on the Property as of the first Rent Commencement Date to occur (except to the extent the presence thereof is already covered by an express indemnification obligation under Section 13.6(b)(viii) or Section 13.6(c), as applicable), and/or (ii) any unauthorized release into the environment (including, but not limited to, the Property) of any hazardous substances or wastes or radiation or radioactive materials (except to the extent such release is already covered by an express indemnification obligation under Section 13.6(b)(viii) or Section 13.6(c), as applicable), then (x) Landlord and Tenant shall cooperate reasonably and in good faith in the defense of such third-party claims, liabilities and related matters and (y) Landlord and Tenant shall each bear fifty percent (50%) of the total claims, losses, damages, liabilities, costs, legal fees and expenses incurred by Landlord and/or Tenant in connection with matters covered by this Section 13.6(d). For purposes of the sharing of expenses contemplated in clause (y) of the preceding sentence, the party directly paying or incurring such costs or expenses shall be entitled to invoice the other party from time to time (on a monthly basis or at other appropriate intervals) for such other party's respective share thereof, which invoice shall be accompanied by copies of third-party invoices or other reasonable documentation supporting the invoiced amounts, and the party receiving such invoice shall pay its share as reflected in the applicable invoice within fifteen (15) days after receipt thereof, unless the parties agree otherwise. Within three (3) months after receipt of any such invoice, the party receiving the invoice shall be entitled, upon reasonable written notice and during normal business hours, to inspect and examine the books and records of the party submitting the invoice with respect to the invoiced amounts. Any dispute with respect thereto that the parties are unable to resolve by good faith negotiations shall be resolved by an independent audit using the same procedure set forth in Section 9.3(b).

(e) The provisions of this Section 13.6 shall survive the termination of this Lease.

14. INSURANCE AND INDEMNITY

14.1 Liability and Property Insurance**.**

(a) Tenant shall procure and maintain in full force and effect at all times during the term of this Lease, at Tenant's cost and expense, commercial general liability insurance to protect against liability arising out of or related to the use of or resulting from any accident occurring in, upon or about the Property, with combined single limit of liability of not less than Five Million Dollars ($5,000,000) per occurrence for bodily injury and property damage. Such insurance shall name Landlord, its Manager, its property manager and any lender holding a deed of trust on the Property from time to time (as designated in writing by Landlord to Tenant from time to time) as additional insureds thereunder. The amount of such insurance shall not be construed to limit any liability or obligation of Tenant under this Lease. Tenant shall also procure and maintain in full force and effect at all times during the term of this Lease, at Tenant's cost and expense, products/completed operations coverage on terms and in amounts satisfactory to Landlord in its reasonable discretion.

(b) Landlord shall procure and maintain in full force and effect at all times during the term of this Lease, at Landlord's cost and expense (but reimbursable as an Operating Expense under Section 9.2 hereof), commercial general liability insurance to protect against liability arising out of or related to the use of or resulting from any accident occurring in, upon or about the Property, with combined single limit of liability of not less than Five Million Dollars ($5,000,000) per occurrence for bodily injury and property damage.

(c) Landlord shall procure and maintain in full force and effect at all times during the term of this Lease, at Landlord's cost and expense (but reimbursable as an Operating Expense under Section 9.2 hereof), policies of property insurance providing protection against "all risk of direct physical loss" (as defined by and detailed in the Insurance Service Office's Commercial Property Program "Cause of Loss – Special Form [CP 1030]" or its equivalent) for the Building Shell (as defined in the Workletter) of each Building and for the improvements in the Common Areas of the Property, on a full replacement cost basis (with no co-insurance or, if

coverage without co-insurance is not reasonably available, then on an "agreed amount" basis). Such insurance shall include earthquake and environmental coverage and shall have such commercially reasonable deductibles and other terms as Landlord in its reasonable discretion determines to be appropriate. Landlord shall, in all events, have no obligation to insure the Tenant Improvements or any other alterations, additions or improvements installed by Tenant in the Buildings or on or about the Property; provided, however, that if Tenant so requests in writing, Landlord agrees to include the Tenant Improvements under Landlord's earthquake coverage, in which event (i) such earthquake coverage with respect to the Tenant Improvements shall be in such amounts and with such commercially reasonable deductibles and other terms as Landlord and Tenant may mutually and reasonably determine to be appropriate, (ii) such earthquake coverage shall, in Landlord's discretion, either name both Landlord and Tenant as insureds as their interests may appear or name Tenant as an additional insured with respect to the portion of the policy that provides earthquake coverage for the Tenant Improvements, (iii) the cost of such earthquake coverage for the Tenant Improvements shall be charged back to Tenant as additional rent under this Lease and shall be reimbursed by Tenant to Landlord within ten (10) business days after Tenant's receipt of a written invoice from Landlord with respect to the premium costs attributable to such coverage, (iv) Tenant shall provide to Landlord from time to time, at or about the Rent Commencement Date for the applicable Building and thereafter annually or at such intervals as Landlord may reasonably request, an updated schedule of values or other appropriate information with respect to the insurable value of the Tenant Improvements, and (v) Landlord shall have no obligation or liability with respect to any underinsurance of the Tenant Improvements that results from Tenant's failure to keep Landlord informed on a current basis of the insurable value of such Tenant Improvements from time to time.

(d) Tenant shall procure and maintain in full force and effect at all times during the term of this Lease, at Tenant's cost and expense, policies of property insurance providing protection against "all risk of direct physical loss" (as defined by and detailed in the Insurance Service Office's Commercial Property Program "Cause of Loss – Special Form [CP1030]" or its equivalent) for the Tenant Improvements constructed by Tenant pursuant to the Workletter and on all other alterations, additions and improvements installed by Tenant from time to time in or about the Building, on a full replacement cost basis (with no co-insurance or, if coverage without co-insurance is not reasonably available, then on an "agreed amount" basis). Such insurance may have such commercially reasonable deductibles and other terms as Tenant in its reasonable discretion determines to be appropriate, and shall name both Tenant and Landlord as insureds as their interests may appear. Without limiting the generality of the foregoing provisions, Tenant's property insurance on the Tenant Improvements in each Building shall in all events include (i) earthquake insurance (except as otherwise provided in paragraph (c) above, if applicable) in an amount at least equal to the amount of the Tenant Improvement Allowance paid by Landlord pursuant to the Workletter in connection with the construction of the Tenant Improvements in such Building, and (ii) business interruption (income) coverage, including extra expense coverage and off-premises utility interruption coverage, in such amounts and on such terms as Tenant in its reasonable discretion determines to be appropriate.

(e) During the course of construction of the improvements being constructed by Landlord and Tenant under Section 5.1 and the Workletter, Landlord shall procure and maintain in full force and effect, at its sole cost and expense, a policy or policies of builder's risk insurance on both the improvements being constructed by it and the improvements being constructed by Tenant, (i) in such amounts and with such commercially reasonable deductibles and other terms as Landlord in its reasonable discretion determines to be appropriate with respect to the insurance on the improvements being constructed by Landlord, and (ii) in such amounts and with such commercially reasonable deductibles and other terms as Landlord and Tenant may mutually and reasonably determine to be appropriate with respect to the insurance on the improvements being constructed by Tenant. Such insurance shall, in Landlord's discretion, either name both Landlord and Tenant as insureds as their interests may appear or name Tenant as an additional insured with respect to the portion of the policy that covers the improvements being constructed by Tenant. Tenant shall provide to Landlord from time to time during the course of construction of improvements by Tenant, at such intervals as Landlord may reasonably request, an updated schedule of values or other appropriate information with respect to the insurable value of the improvements, work in progress and materials located on the Property in connection with Tenant's construction of improvements, and Landlord shall have no obligation or liability with respect to any underinsurance of Tenant's improvements, work in progress and materials that results from Tenant's failure to keep Landlord informed on a current basis, during the course of construction, of the insurable value of such improvements, work in progress and materials on the Property from time to time.

14.2 Quality Of Policies And Certificates. All policies of insurance required hereunder shall be issued by responsible insurers and, in the case of policies carried or required to be carried by Tenant, shall be written as primary policies not contributing with and not in excess of any coverage that Landlord may carry. The coverage provided by such policies shall include, where applicable, the clause or endorsement referred to in Section 14.4. Each party shall deliver to the other party certificates of insurance showing that the insuring party's required policies are in effect. If either party fails to acquire, maintain or renew any insurance required to be maintained by it under this Article 14 or to pay the premium therefor, then the other party, at its option and in addition to its other remedies, but without obligation so to do, may procure such insurance, and any sums expended by Landlord to procure any such insurance on behalf of or in place of Tenant shall be repaid upon demand, with interest as provided in Section 3.2 hereof. Tenant shall give Landlord at least thirty (30) days prior written notice of any cancellation or nonrenewal of insurance required to be maintained by Tenant under this Article 14, and shall obtain written undertakings from each insurer under policies required to be maintained by Tenant to notify all insureds thereunder at least thirty (30) days prior to cancellation of coverage.

14.3 Workers' Compensation. Tenant shall maintain in full force and effect during the term of this Lease workers' compensation insurance, in at least the minimum amounts required by law, covering all of Tenant's employees working on the Property.

14.4 Waiver Of Subrogation. To the extent permitted by law and without affecting the coverage provided by insurance required to be maintained hereunder, Landlord and Tenant each waive any right to recover against the other with respect to (i) damage to property, (ii) damage to the Property or any part thereof, or (iii) claims arising by reason of any of the foregoing, but only to the extent that any of the foregoing damages and claims under clauses (i)-(iii) hereof are covered, and only to the extent of such coverage, by property insurance actually carried or required to be carried hereunder by either Landlord or Tenant. This provision is intended to waive fully, and for the benefit of each party, any rights and claims which might give rise to a right of subrogation in any insurance carrier. Each party shall procure a clause or endorsement on any property insurance policy denying to the insurer rights of subrogation against the other party to the extent rights have been waived by the insured prior to the occurrence of injury or loss. Coverage provided by insurance maintained by Tenant shall not be limited, reduced or diminished by virtue of the subrogation waiver herein contained.

14.5 Increase In Premiums. Tenant shall do all acts and pay all expenses necessary to insure that the Buildings are not used for purposes prohibited by any applicable fire insurance, and that Tenant's use of the Buildings and the Property complies with all requirements necessary to obtain any such insurance. If Tenant uses or permits the Buildings or the Property to be used in a manner which increases the existing rate of any insurance carried by Landlord on the Center, then Tenant shall pay the amount of the increase in premium caused thereby, and Landlord's costs of obtaining other replacement insurance policies, including any increase in premium, within ten (10) days after demand therefor by Landlord.

14.6 Indemnification**.**

(a) Except as otherwise expressly provided in this Lease, Tenant shall indemnify, defend and hold Landlord and its members, partners, shareholders, officers, directors, agents, employees and contractors harmless from any and all liability for bodily injury to or death of any person, or loss of or damage to the property of any person, and all actions, claims, demands, costs (including, but not limited to, reasonable attorneys' fees), damages or expenses of any kind arising therefrom which may be brought or made against Landlord or which Landlord may pay or incur by reason of the use, occupancy and enjoyment of the Property by Tenant or any invitees, sublessees, licensees, assignees, agents, employees or contractors of Tenant or holding under Tenant (including, but not limited to, any such matters arising out of or in connection with any early entry upon the Property by Tenant pursuant to Section 2.2 hereof) from any cause whatsoever other than negligence or willful misconduct or omission by Landlord or its agents, employees or contractors. Landlord and its members, partners, shareholders, officers, directors, agents, employees and contractors shall not be liable for, and Tenant hereby waives all claims against such persons for, damages to goods, wares and merchandise in or upon the Property, or for injuries to Tenant, its agents or third persons in or upon the Property, from any cause whatsoever other than negligence or willful misconduct or omission by Landlord or its agents, employees or contractors. Tenant shall give prompt notice to Landlord of any casualty or accident in, on or about the Property.

(b) Except as otherwise expressly provided in this Lease, Landlord shall indemnify, defend and hold Tenant and its shareholders, officers, directors, agents, employees and contractors harmless from any and all liability for bodily injury to or death of any person, or loss of or damage to the property of any person, and all actions, claims, demands, costs (including, but not limited to, reasonable attorneys' fees), damages or expenses of any kind arising therefrom which may be brought or made against Tenant or which Tenant may pay or incur, to the extent such liabilities or other matters arise in, on or about the Property by reason of any negligence or willful misconduct or omission by Landlord or its agents, employees or contractors.

14.7 Blanket Policy. Any policy required to be maintained hereunder may be maintained under a so-called "blanket policy" insuring other parties and other locations so long as the amount of insurance required to be provided hereunder is not thereby diminished. Without limiting the generality of the requirement set forth at the end of the preceding sentence, property insurance provided under a blanket policy shall provide full replacement cost coverage and liability insurance provided under a blanket policy shall include per location aggregate limits meeting or exceeding the limits required under this Article 14.

15. SUBLEASE AND ASSIGNMENT

15.1 Assignment And Sublease Of Building(s). Except in the case of a Permitted Transfer (as hereinafter defined), Tenant shall not have the right or power to assign its interest in this Lease, or make any sublease of any Building or any portion thereof, nor shall any interest of Tenant under this Lease be assignable involuntarily or by operation of law, without on each occasion obtaining the prior written consent of Landlord, which consent shall not be unreasonably withheld or delayed. Any purported sublease or assignment of Tenant's interest in this Lease requiring but not having received Landlord's consent thereto (to the extent such consent is required hereunder) shall be void. Without limiting the generality of the foregoing provisions, Landlord may withhold consent to any proposed subletting or assignment solely on the ground, if applicable, that the use by the proposed subtenant or assignee is reasonably likely to be incompatible with Landlord's use of the balance of the Property or of any adjacent property owned or operated by Landlord, unless the proposed use is within the permitted uses specified in Section 13.1, in which event it shall not be reasonable for Landlord to object to the proposed use. Except in the case of a Permitted Transfer, any dissolution, consolidation, merger or other reorganization of Tenant, or any sale or transfer of the stock or assets of or other interest in Tenant, in a single transaction or series of related transactions, involving in the aggregate a change of fifty percent (50%) or more in the beneficial ownership of Tenant or its assets shall be deemed to be an assignment hereunder and shall be void without the prior written consent of Landlord as required above. Notwithstanding the foregoing, (i) an initial public offering of the common stock of Tenant shall not be deemed to be an assignment hereunder; and (ii) Tenant shall have the right to assign this Lease or sublet the Buildings, or any portion thereof, without Landlord's consent (but with prior or concurrent written notice by Tenant to Landlord), to any entity which controls, is controlled by, or is under common control with Tenant, or to any entity which results from a merger or consolidation with Tenant, or to any entity engaged in a bona fide joint venture with Tenant, or to any entity which acquires substantially all of the stock or assets of Tenant, as a going concern, with respect to the business that is being conducted on the Property (hereinafter each a "Permitted Transfer"). In addition, a sale or transfer of the capital stock of Tenant shall be deemed a Permitted Transfer (x) if such sale or transfer occurs in connection with any bona fide financing or capitalization for the benefit of Tenant, or (y) if Tenant becomes, and while Tenant is, a publicly traded corporation. Landlord shall have no right to terminate this Lease in connection with, and shall have no right to any sums or other economic consideration resulting from, any Permitted Transfer. Except as expressly set forth in this Section 15.1, however, the provisions of Section 15.2 shall remain applicable to any Permitted Transfer and the transferee under such Permitted Transfer shall be and remain subject to all of the terms and provisions of this Lease.

15.2 Rights Of Landlord. Consent by Landlord to one or more assignments of this Lease, or to one or more sublettings of any Building or any portion thereof, or collection of rent by Landlord from any assignee or sublessee, shall not operate to exhaust Landlord's rights under this Article 15, nor constitute consent to any subsequent assignment or subletting. No assignment of Tenant's interest in this Lease and no sublease shall relieve Tenant of its obligations hereunder, notwithstanding any waiver or extension of time granted by Landlord to any assignee or sublessee, or the failure of Landlord to assert its rights against any assignee or sublessee, and regardless of whether Landlord's consent thereto is given or required to be given hereunder. In the event of a default by any assignee, sublessee or other successor of Tenant in the performance of any of the terms or obligations of Tenant under this Lease, Landlord may proceed directly against Tenant without the necessity of exhausting remedies against any such assignee, sublessee or other successor. In addition, Tenant immediately and irrevocably assigns to Landlord, as security for Tenant's obligations under this Lease, all rent from any subletting of all or a part of any Building as permitted under this Lease, and Landlord, as Tenant's assignee and as attorney-in-fact for Tenant, or any receiver for Tenant appointed on Landlord's application, may collect such rent and apply it toward Tenant's obligations under this Lease; except that, until the occurrence of an act of default by Tenant, Tenant shall have the right to collect such rent and to retain all sublease profits.

16. RIGHT OF ENTRY AND QUIET ENJOYMENT

16.1 Right Of Entry. Landlord and its authorized representatives shall have the right to enter the Buildings at any time during the term of this Lease during normal business hours and upon not less than twenty-four (24) hours prior notice, except in the case of emergency (in which event no notice shall be required and entry may be made at any time), for the purpose of inspecting and determining the condition of the Buildings or for any other proper purpose including, without limitation, to make repairs, replacements or improvements which Landlord may deem necessary, to show the Buildings to prospective purchasers, to show the Buildings to prospective tenants (but only during the final year of the term of this Lease), and to post notices of nonresponsibility. Landlord shall not be liable for inconvenience, annoyance, disturbance, loss of business, quiet enjoyment or other damage or loss to Tenant by reason of making any repairs or performing any work upon the Buildings or the Property or by reason of erecting or maintaining any protective barricades in connection with any such work, and the obligations of Tenant under this Lease shall not thereby be affected in any manner whatsoever, provided, however, Landlord shall use reasonable efforts to minimize the inconvenience to Tenant's normal business operations caused thereby.

16.2 Quiet Enjoyment. Landlord covenants that Tenant, upon paying the rent and performing its obligations hereunder and subject to all the terms and conditions of this Lease, shall peacefully and quietly have, hold and enjoy the Buildings and the Property throughout the term of this Lease, or until this Lease is terminated as provided by this Lease.

17. CASUALTY AND TAKING

17.1 Damage or Destruction**.**

(a) If any or all Buildings, or the Common Areas of the Property necessary for Tenant's use and occupancy of any or all Buildings, are damaged or destroyed in whole or in part under circumstances in which (i) repair and restoration is permitted under applicable governmental laws, regulations and building codes then in effect and (ii) repair and restoration reasonably can be completed within a period of one (1) year (or, in the case of an occurrence during the last two (2) years of the term of this Lease, within a period of sixty (60) days) following the date of the occurrence, then Landlord, as to the Common Areas of the Property and the Building Shell of the applicable Building(s), and Tenant, as to the Tenant Improvements constructed by Tenant, shall commence and complete, with all due diligence and as promptly as is reasonably practicable under the conditions then existing, all such repair and restoration as may be required to return the affected portions of the Property to a condition comparable to that existing immediately prior to the occurrence. In the event of damage or destruction the repair of which is not permitted under applicable governmental laws, regulations and building codes then in effect, if such damage or destruction (despite being corrected to the extent then permitted under applicable governmental laws, regulations and building codes) would still materially impair Tenant's ability to conduct its business in the applicable Building(s), then either party may terminate this Lease with respect to the applicable Building(s) as of the date of the

occurrence by giving written notice to the other within thirty (30) days after the date of the occurrence; if neither party timely elects such termination, or if such damage or destruction does not materially impair Tenant's ability to conduct its business in the applicable Building(s), then this Lease shall continue in full force and effect, except that there shall be an equitable adjustment in monthly minimum rental and of Tenant's Operating Cost Share of Operating Expenses, based upon the extent to which Tenant's ability to conduct its business in the applicable Building(s) is impaired, and Landlord and Tenant respectively shall restore the Common Areas and Building Shell and the Tenant Improvements in the applicable Building(s) to a complete architectural whole and to a functional condition. In the event of damage or destruction which cannot reasonably be repaired within one (1) year (or, in the case of an occurrence during the last two (2) years of the term of this Lease, within a period of sixty (60) days) following the date of the occurrence, then either Landlord or Tenant, at its election, may terminate this Lease with respect to the applicable Building(s) as of the date of the occurrence by giving written notice to the other within thirty (30) days after the date of the occurrence; if neither party timely elects such termination, then this Lease shall continue in full force and effect and Landlord and Tenant shall each repair and restore applicable portions of the Property in accordance with the first sentence of this Section 17.1(a).

(b) The respective obligations of Landlord and Tenant pursuant to Section 17.1(a) are subject to the following limitations:

(i) If the occurrence results from a peril which is required to be insured pursuant to Section 14.1(c) and (d) above, the obligations of each party shall not exceed the amount of insurance proceeds received from insurers (or, in the case of any failure to maintain required insurance, proceeds that reasonably would have been available if the required insurance had been maintained) by reason of such occurrence, plus the amount of the party's permitted deductible (provided that each party shall be obligated to use its best efforts to recover any available proceeds from the insurance which it is required to maintain pursuant to the provisions of Section 14.1(c) or (d), as applicable), and, if such proceeds (including, in the case of a failure to maintain required insurance, any proceeds that reasonably would have been available) are insufficient, either party may terminate this Lease with respect to the applicable Building(s) unless the other party promptly elects and agrees, in writing, to contribute the amount of the shortfall; and

(ii) If the occurrence results from a peril which is not required to be insured pursuant to Section 14.1(c) and (d) above and is not actually insured, Landlord shall be required to repair and restore the Common Areas and the Building Shell of the applicable Building(s) to the extent necessary for Tenant's continued use and occupancy of the applicable Building(s), and Tenant shall be required to repair and restore the Tenant Improvements to the extent necessary for Tenant's continued use and occupancy of the applicable Building(s), provided that each party's out of pocket cost (after application of any insurance proceeds) to repair and restore shall not exceed an amount equal to fifteen percent (15%) of the replacement cost of the Building Shell of the applicable Building(s) and the Common Area improvements, as to Landlord, or fifteen percent (15%) of the replacement cost of the Tenant Improvements in the applicable Building(s), as to Tenant; if the out of pocket replacement cost as to either party exceeds such amount, then the party whose limit has been exceeded may terminate this Lease with respect to the applicable Building(s) unless the other party promptly elects and agrees, in writing, to contribute the amount of the shortfall.

(c) If this Lease is terminated with respect to the applicable Building(s) pursuant to the foregoing provisions of this Section 17.1 following an occurrence which is a peril actually insured or required to be insured against pursuant to Section 14.1(c) and (d), Landlord and Tenant agree (and any Lender shall be asked to agree) that such insurance proceeds shall be allocated between Landlord and Tenant in a manner which fairly and reasonably reflects their respective ownership rights under this Lease, as of the termination or expiration of the term of this Lease, with respect to the improvements, fixtures, equipment and other items to which such insurance proceeds are attributable.

(d) From and after the date of an occurrence resulting in damage to or destruction of a Building or of the Common Areas necessary for Tenant's use and occupancy of the Buildings, and continuing until repair and restoration thereof are completed, there shall be an equitable abatement of Minimum Rental and additional rent and of Tenant's Operating Cost Share of Operating Expenses based upon the degree to which Tenant's ability to conduct its business in the applicable Building(s) is impaired.

17.2 Condemnation**.**

(a) If during the term of this Lease one or more Buildings, the Property or Improvements, or any substantial part of any of them, is taken by eminent domain or by reason of any public improvement or condemnation proceeding, or in any manner by exercise of the right of eminent domain (including any transfer in avoidance of an exercise of the power of eminent domain), or receives irreparable damage by reason of anything lawfully done under color of public or other authority, then (i) this Lease shall terminate as to the entire applicable Building(s) at Landlord's election by written notice given to Tenant within sixty (60) days after the taking has occurred, and (ii) this Lease shall terminate as to the entire applicable Building(s) at Tenant's election, by written notice given to Landlord within thirty (30) days after the nature and extent of the taking have been finally determined, if the portion of the Property taken is of such extent and nature as substantially to handicap, impede or permanently impair Tenant's use of the balance of the applicable Building(s). If Tenant elects to terminate this Lease, Tenant shall also notify Landlord of the date of termination, which date shall not be earlier than thirty (30) days nor later than ninety (90) days after Tenant has notified Landlord of Tenant's election to terminate, except that this Lease shall terminate on the date of taking if such date falls on any date before the date of termination designated by Tenant. If neither party elects to terminate this Lease as to the applicable Building(s) as hereinabove provided, this Lease shall continue in full force and effect (except that there shall be an equitable abatement of Minimum Rental and additional rent and of Tenant's Operating Cost Share of Operating Expenses based upon the degree to which Tenant's ability to conduct its business in the applicable. Building(s) is impaired), Landlord shall restore the Building Shell of the applicable Building(s) and the Common Area improvements to a complete architectural whole and a functional condition and as nearly as reasonably possible to the condition existing before the taking, and Tenant shall restore the Tenant Improvements and Tenant's other alterations, additions and improvements to a complete architectural whole and a functional condition and as nearly as reasonably possible to the condition existing before the taking. In connection with any such restoration, each party shall use its respective best efforts (including, without limitation, any necessary negotiation or intercession with its respective lender, if any) to ensure that any severance damages or other condemnation awards intended to provide compensation for rebuilding or restoration costs are promptly collected and made available to Landlord and Tenant in portions reasonably corresponding to the cost and scope of their respective restoration obligations, subject only to such payment controls as either party or its lender may reasonably require in order to ensure the proper application of such proceeds toward the restoration of the Improvements. Each party waives the provisions of Code of Civil Procedure Section 1265.130, allowing either party to petition the Superior Court to terminate this Lease in the event of a partial condemnation of one or more Buildings or the Property.

(b) The respective obligations of Landlord and Tenant pursuant to Section 17.2(a) are subject to the following limitations:

(i) Each party's obligation to repair and restore shall not exceed, net of any condemnation awards or other proceeds available for and allocable to such restoration as contemplated in Section 17.2(a), an amount equal to five percent (5%) of the replacement cost of the Building Shell of the applicable Building(s) and the Common Area improvements, as to Landlord, or five percent (5%) of the replacement cost of the Tenant Improvements in the applicable Building(s), as to Tenant; if the replacement cost as to either party exceeds such amount, then the party whose limit has been exceeded may terminate this Lease with respect to the applicable Building(s) unless the other party promptly elects and agrees, in writing, to contribute the amount of the shortfall; and

(ii) If this Lease is terminated with respect to the applicable Building(s) pursuant to the foregoing provisions of this Section 17.2, or if this Lease remains in effect but any condemnation awards or other proceeds become available as compensation for the loss or destruction of any of the Improvements, then Landlord and Tenant agree (and any Lender shall be asked to agree) that there shall be paid from such award or proceeds (i) to Landlord, the award or proceeds attributable or allocable to the Building Shell of the applicable Building(s) and/or the Common Area improvements, and (ii) to Landlord and Tenant, respectively, portions of the award or proceeds attributable or allocable to the Tenant Improvements in the applicable Building(s), in the respective proportions in which Landlord and Tenant would have shared, under Section 17.1(c), the proceeds of any insurance proceeds following loss or destruction of such Tenant Improvements by an insured casualty.

17.3 Reservation Of Compensation. Landlord reserves, and Tenant waives and assigns to Landlord, all rights to any award or compensation for damage to the Improvements, the Property and the leasehold estate created hereby, accruing by reason of any taking in any public improvement, condemnation or eminent domain proceeding or in any other manner by exercise of the right of eminent domain or of anything lawfully done by public authority, except that (a) Tenant shall be entitled to any and all compensation or damages paid for or on account of Tenant's moving expenses, trade fixtures and equipment, and (b) any condemnation awards or proceeds described in Section 17.2(b)(ii) shall be allocated and disbursed in accordance with the provisions of Section 17.2(b)(ii), notwithstanding any contrary provisions of this Section 17.3.

17.4 Restoration Of Improvements. In connection with any repair or restoration of Improvements by either party following a casualty or taking as hereinabove set forth, the party responsible for such repair or restoration shall, to the extent possible, return such Improvements to a condition substantially equal to that which existed immediately prior to the casualty or taking. To the extent such party wishes to make material modifications to such Improvements, such modifications shall be subject to the prior written approval of the other party (not to be unreasonably withheld or delayed), except that no such approval shall be required for modifications that are required by applicable governmental authorities as a condition of the repair or restoration, unless such required modifications would impair or impede Tenant's conduct of its business in the applicable Building(s) (in which case any such modifications in Landlord's work shall require Tenant's consent, not unreasonably withheld or delayed) or would materially and adversely affect the exterior appearance, the structural integrity or the mechanical or other operating systems of the applicable Building(s) (in which case any such modifications in Tenant's work shall require Landlord's consent, not unreasonably withheld or delayed).

18. DEFAULT

18.1 Events Of Default. The occurrence of any of the following shall constitute an event of default on the part of Tenant:

(a) Abandonment. Abandonment of one or more Buildings. "Abandonment" is hereby defined to include, but is not limited to, any absence by Tenant from the applicable Building(s) for fifteen (15) consecutive days or more while Tenant is in default under any other provision of this Lease. Tenant waives any right Tenant may have to notice under Section 1951.3 of the California Civil Code, the terms of this subsection (a) being deemed such notice to Tenant as required by said Section 1951.3;

(b) Nonpayment. Failure to pay, when due, any amount payable to Landlord hereunder, such failure continuing for a period of five (5) days after written notice of such failure; provided, however, that any such notice shall be in lieu of, and not in addition to, any notice required under California Code of Civil Procedure Section 1161 et seq., as amended from time to time;

(c) Other Obligations. Failure to perform any obligation, agreement or covenant under this Lease other than those matters specified in subsection (b) hereof, such failure continuing for fifteen (15) days after written notice of such failure; provided, however, that if such failure is curable in nature but cannot reasonably be cured within such 15-day period, then Tenant shall not be in default if, and so long as, Tenant promptly (and in all events within such 15-day period) commences such cure and thereafter diligently pursues such cure to completion; and provided further, however, that any such notice shall be in lieu of, and not in addition to, any notice required under California Code of Civil Procedure Section 1161 et seq., as amended from time to time;

(d) General Assignment. A general assignment by Tenant for the benefit of creditors;

(e) Bankruptcy. The filing of any voluntary petition in bankruptcy by Tenant, or the filing of an involuntary petition by Tenant's creditors, which involuntary petition remains undischarged for a period of thirty (30) days. In the event that under applicable law the trustee in bankruptcy or Tenant has the right to affirm this Lease and continue to perform the obligations of Tenant hereunder, such trustee or Tenant shall, in such time period as may be permitted by the bankruptcy court having jurisdiction, cure all defaults of Tenant hereunder outstanding as of the date of the affirmance of this Lease and provide to Landlord such adequate assurances as may be necessary to ensure Landlord of the continued performance of Tenant's obligations under this Lease. Specifically, but without limiting the generality of the foregoing, such adequate assurances must include assurances that the Buildings continue to be operated only for the use permitted hereunder. The provisions hereof are to assure that the basic understandings between Landlord and Tenant with respect to Tenant's use of the Property and the benefits to Landlord therefrom are preserved, consistent with the purpose and intent of applicable bankruptcy laws;

(f) Receivership. The employment of a receiver appointed by court order to take possession of substantially all of Tenant's assets or Tenant's interest in one or more of the Buildings, if such receivership remains undissolved for a period of thirty (30) days;

(g) Attachment. The attachment, execution or other judicial seizure of all or substantially all of Tenant's assets or Tenant's interest in one or more of the Buildings, if such attachment or other seizure remains undismissed or undischarged for a period of thirty (30) days after the levy thereof; or

(h) Insolvency. The admission by Tenant in writing of its inability to pay its debts as they become due, the filing by Tenant of a petition seeking any reorganization or arrangement, composition, readjustment, liquidation, dissolution or similar relief under any present or future statute, law or regulation, the filing by Tenant of an answer admitting or failing timely to contest a material allegation of a petition filed against Tenant in any such proceeding or, if within thirty (30) days after the commencement of any proceeding against Tenant seeking any reorganization or arrangement, composition, readjustment, liquidation, dissolution or similar relief under any present or future statute, law or regulation, such proceeding shall not have been dismissed.

18.2 Remedies Upon Tenant's Default**.**

(a) Upon the occurrence of any event of default described in Section 18.1 hereof, Landlord, in addition to and without prejudice to any other rights or remedies it may have, shall have the immediate right to re-enter the Buildings or any part thereof and repossess the same, expelling and removing therefrom all persons and property (which property may be stored in a public warehouse or elsewhere at the cost and risk of and for the account of Tenant), using such force as may be necessary to do so (as to which Tenant hereby waives any claim for loss or damage that may thereby occur). In addition to or in lieu of such re-entry, and without prejudice to any other rights or remedies it may have, Landlord shall have the right either (i) to terminate this Lease and recover from Tenant all damages incurred by Landlord as a result of Tenant's default, as hereinafter provided, or (ii) to continue this Lease in effect and recover rent and other charges and amounts as they become due.

(b) Even if Tenant has breached this Lease and abandoned one or more Building(s), this Lease shall continue in effect for so long as Landlord does not terminate Tenant's right to possession under subsection (a) hereof and Landlord may enforce all of its rights and remedies under this Lease, including the right to recover rent as it becomes due, and Landlord, without terminating this Lease, may exercise all of the rights and remedies of a lessor under California Civil Code Section 1951.4 (lessor may continue lease in effect after lessee's breach and abandonment and recover rent as it becomes due, if lessee has right to sublet or assign, subject only to reasonable limitations), or any successor Code section. Acts of maintenance, preservation or efforts to relet the Building(s) or the appointment of a receiver upon application of Landlord to protect Landlord's interests under this Lease shall not constitute a termination of Tenant's right to possession.

(c) If Landlord terminates this Lease pursuant to this Section 18.2, Landlord shall have all of the rights and remedies of a landlord provided by Section 1951.2 of the Civil Code of the State of California, or any successor Code section, which remedies include Landlord's right to recover from Tenant (i) the worth at the time of award of the unpaid rent and additional rent which had been earned at the time of termination, (ii) the worth at the time of award of the amount by which the unpaid rent and additional rent which would have been earned

after termination until the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided, (iii) the worth at the time of award of the amount by which the unpaid rent and additional rent for the balance of the term after the time of award exceeds the amount of such rental loss that Tenant proves could be reasonably avoided, and (iv) any other amount necessary to compensate Landlord for all the detriment proximately caused by Tenant's failure to perform its obligations under this Lease or which in the ordinary course of things would be likely to result therefrom, including, but not limited to, the cost of recovering possession of the Buildings, expenses of reletting, including necessary repair, renovation and alteration of the Buildings, reasonable attorneys' fees, and other reasonable costs. The "worth at the time of award" of the amounts referred to in clauses (i) and (ii) above shall be computed by allowing interest at ten percent (10%) per annum from the date such amounts accrued to Landlord. The "worth at the time of award" of the amounts referred to in clause (iii) above shall be computed by discounting such amounts at one percentage point above the discount rate of the Federal Reserve Bank of San Francisco at the time of award.

18.3 Remedies Cumulative. All rights, privileges and elections or remedies of Landlord contained in this Article 18 are cumulative and not alternative to the extent permitted by law and except as otherwise provided herein.

19. SUBORDINATION, ATTORNMENT AND SALE

19.1 Subordination To Mortgage. This Lease, and any sublease entered into by Tenant under the provisions of this Lease, shall be subject and subordinate to any ground lease, mortgage, deed of trust, sale/leaseback transaction or any other hypothecation for security now or hereafter placed upon the Buildings, the Property, the Center, or any of them, and the rights of any assignee of Landlord or of any ground lessor, mortgagee, trustee, beneficiary or leaseback lessor under any of the foregoing, and to any and all advances made on the security thereof and to all renewals, modifications, consolidations, replacements and extensions thereof; provided, however, that such subordination in the case of any future ground lease, mortgage, deed of trust, sale/leaseback transaction or any other hypothecation for security placed upon the Buildings, the Property, the Center or any of them shall be conditioned on Tenant's receipt from the ground lessor, mortgagee, trustee, beneficiary or leaseback lessor of a Non-Disturbance Agreement in a form reasonably acceptable to Tenant confirming that so long as Tenant is not in default hereunder, Tenant's rights hereunder shall not be disturbed by such person or entity. Moreover, Tenant's obligations under this Lease shall be conditioned on Tenant's receipt within thirty (30) days after mutual execution of this Lease, from any ground lessor, mortgagee, trustee, beneficiary or leaseback lessor currently owning or holding a security interest in the Property, of a Non-Disturbance Agreement in a form reasonably acceptable to Tenant confirming that so long as Tenant is not in default hereunder, Tenant's rights hereunder shall not be disturbed by such person or entity. (Landlord hereby advises Tenant, however, that in fact there is no mortgagee, trustee, beneficiary, ground lessor or leaseback lessor holding an interest in the Property on the date of this Lease.) If any mortgagee, trustee, beneficiary, ground lessor, sale/leaseback lessor or assignee elects to have this Lease be an encumbrance upon the Property prior to the lien of its mortgage, deed of trust, ground lease or leaseback lease or other security arrangement and gives notice thereof to Tenant, this Lease shall be deemed prior thereto, whether this Lease is dated prior or subsequent to the date thereof or the date of recording thereof. Tenant, and any sublessee, shall execute such documents as may reasonably be requested by any mortgagee, trustee, beneficiary, ground lessor, sale/leaseback lessor or assignee to evidence the subordination herein set forth, subject to the conditions set forth above, or to make this Lease prior to the lien of any mortgage, deed of trust, ground lease, leaseback lease or other security arrangement, as the case may be, and if Tenant fails to do so within ten (10) days after demand from Landlord, Tenant constitutes and appoints Landlord as Tenant's attorney-in-fact and in Tenant's name, place and stead to do so. Upon any default by Landlord in the performance of its obligations under any mortgage, deed of trust, ground lease, leaseback lease or assignment, Tenant (and any sublessee) shall, notwithstanding any subordination hereunder, attorn to the mortgagee, trustee, beneficiary, ground lessor, leaseback lessor or assignee thereunder upon demand and become the tenant of the successor in interest to Landlord, at the option of such successor in interest, and shall execute and deliver any instrument or instruments confirming the attornment herein provided for.

19.2 Sale Of Landlord's Interest. Upon sale, transfer or assignment of Landlord's entire interest in the Buildings and the Property, Landlord shall be relieved of its obligations hereunder with respect to liabilities accruing from and after the date of such sale, transfer or assignment, except as otherwise expressly provided in Section 21.2 hereof.

19.3 Estoppel Certificates**.** Either Tenant or Landlord (the **"**certifying party") shall at any time and from time to time, within ten (10) days after written request by the other party (the "requesting party**"**), execute, acknowledge and deliver to the requesting party a certificate in writing stating: (i) that this Lease is unmodified and in full force and effect, or if there have been any modifications, that this Lease is in full force and effect as modified and stating the date and the nature of each modification; (ii) the date to which rental and all other sums payable hereunder have been paid; (iii) that the requesting party is not in default in the performance of any of its obligations under this Lease, that the certifying party has given no notice of default to the requesting party and that no event has occurred which, but for the expiration of the applicable time period, would constitute an event of default hereunder, or if the certifying party alleges that any such default, notice or event has occurred, specifying the same in reasonable detail; and (iv) such other matters as may reasonably be requested by the requesting party or by any institutional lender, mortgagee, trustee, beneficiary, ground lessor, sale/leaseback lessor or prospective purchaser of the Property or of Tenant's leasehold interest therein. Any such certificate provided under this Section 19.3 may be relied upon by any lender, mortgagee, trustee, beneficiary, assignee or successor in interest to the requesting party, by any prospective purchaser, by any purchaser on foreclosure or sale, by any grantee under a deed in lieu of foreclosure of any mortgage or deed of trust on the Property, or by any other third party. Failure to execute and return within the required time any estoppel certificate requested hereunder shall be deemed to be an admission of the truth of the matters set forth in the form of certificate submitted to the certifying party for execution.

19.4 Subordination to CC&R's. This Lease, and any permitted sublease entered into by Tenant under the provisions of this Lease, and the interests in real property conveyed hereby and thereby, shall be subject and subordinate (a) to any declarations of covenants, conditions and restrictions or other recorded restrictions affecting the Property or the Center from time to time, which may include easements, access rights and similar non-exclusive use rights and privileges in favor of appropriate third parties; provided that the terms of such declarations or restrictions are reasonable (or, to the extent they are not reasonable, are mandated by applicable law), do not materially impair Tenant's ability to conduct the uses permitted hereunder on the Property, and do not discriminate against Tenant relative to other similarly situated tenants occupying portions of the Center, and provided further that except with Tenant's prior written consent. Landlord shall not enter into any such future declarations of covenants, conditions and restrictions or other recorded restrictions that are applicable, by their terms, solely to one or more of the buildings occupied by or leased to Tenant under this Lease (including any buildings occupied by or leased to Tenant pursuant to Tenant's exercise of any of the rights contained in Article 6 of this Lease) and not to any buildings occupied by or leased to other tenants in the Center or, if Tenant exercises its rights under Section 6,3 of this Lease, on the Expansion Property; (b) to the Declaration of Covenants, Conditions and Restrictions and Reciprocal Easements for Shearwater Project dated January 21,1998 and recorded on January 22, 1998 as Instrument No. 98-008277, Official Records of San Mateo County, as amended from time to time (the "Shearwater Declaration"), the provisions of which Shearwater Declaration are an integral part of this Lease; and (c) to the Covenant and Environmental Restriction dated as of January 26, 1998 and recorded on February 3, 1998 as Instrument No. 98-013813, Official Records of San Mateo County, as amended from time to time (the "Environmental Restriction"), the provisions of which Environmental Restriction are incorporated herein by this reference. Tenant agrees to execute, upon request by Landlord, any documents reasonably required from time to time to evidence the foregoing subordination.

19.5 Mortgagee Protection**.**

(a) If, in connection with any future ground lease, mortgage, deed of trust, sale/leaseback transaction or any other hypothecation for security placed upon the Buildings, the Property, the Center, or any of them, the ground lessor, mortgagee, trustee, beneficiary or leaseback lessor requests any changes in this Lease as a condition to its willingness to enter into or accept the ground lease, mortgage, deed of trust, sale/leaseback transaction or other hypothecation for security, then Tenant shall not unreasonably withhold or delay its consent to any such requested changes and shall execute, at the request of Landlord, an amendment to this Lease incorporating the changes thus reasonably consented to by Tenant. It shall be deemed reasonable for Tenant to withhold consent to any requested change which imposes a substantial

new monetary obligation on Tenant or which otherwise substantially impairs Tenant's rights under this Lease. Tenant's obligations under this Section 19.5(a) shall be conditioned on Tenant's concurrent receipt, from the ground lessor, mortgagee, trustee, beneficiary or leaseback lessor, of a Non-Disturbance Agreement in a form reasonably acceptable to Tenant confirming that so long as Tenant is not in default hereunder, Tenant's rights hereunder shall not be disturbed by such person or entity.

(b) If, following a default by Landlord under any mortgage, deed of trust, ground lease, leaseback lease or other security arrangement covering the Buildings, the Property, the Center or any of them, the Buildings, the Property and/or the Center, as applicable, is acquired by the mortgagee, beneficiary, master lessor or other secured party, or by any other successor owner, pursuant to a foreclosure, trustee's sale, sheriff's sale, lease termination or other similar procedure (or deed in lieu thereof), then any such person or entity so acquiring the Buildings, the Property and/or the Center shall not be:

(i) liable for any act or omission of a prior landlord or owner of the Property and/or the Center (including, but not limited to, Landlord);

(ii) subject to any offsets or defenses that Tenant may have against any prior landlord or owner of the Property and/or the Center (including, but not limited to, Landlord);

(iii) bound by any rent or additional rent that Tenant may have paid in advance to any prior landlord or owner of the Property and/or the Center (including, but not limited to, Landlord) for a period in excess of one month, or by any security deposit, cleaning deposit or other prepaid charge that Tenant may have paid in advance to any prior landlord or owner (including, but not limited to, Landlord) except to the extent such deposit or prepaid amount has been expressly turned over to or credited to the successor owner thus acquiring the Property and/or the Center, as applicable;

(iv) liable for any warranties or representations of any nature whatsoever, whether pursuant to this Lease or otherwise, by any prior landlord or owner of the Property and/or the Center (including, but not limited to, Landlord) with respect to the use, construction, zoning, compliance with laws, title, habitability, fitness for purpose or possession, or physical condition (including, without limitation, environmental matters) of the Property, the Buildings or the Center; or

(v) liable to Tenant in any amount beyond the interest of such mortgagee, beneficiary, master lessor or other secured party or successor owner in the Property and the Center as they exist from time to time, it being the intent of this provision that Tenant shall look solely to the interest of any such mortgagee, beneficiary, master lessor or other secured party or successor owner in the Property and Center for the payment and discharge of the landlord's obligations under this Lease and that such mortgagee, beneficiary, master lessor or other secured party or successor owner shall have no separate personal liability for any such obligations.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

21. MISCELLANEOUS

21.1 Notices. All notices, consents, waivers and other communications which this Lease requires or permits either party to give to the other shall be in writing and shall be deemed given when delivered personally (including delivery by private same-day or overnight courier or express delivery service) or by telecopier with mechanical confirmation of transmission, effective upon personal delivery to or refusal of delivery by the recipient (in the case of personal delivery by any of the means described above) or upon telecopier transmission during normal business hours at the recipient's office (in the case of telecopier transmission, with any transmission outside of normal business hours being effective as of the beginning of the first business day commencing after the time of actual transmission) to the parties at their respective addresses as follows:

To Tenant:

(until Phase I Rent Commencement Date)
Tularik Inc.
Two Corporate Drive
South San Francisco, CA 94080
Attn: Luis Bayol
Telecopier: (650) 825-7554

(after Phase I Rent Commencement Date)
Tularik Inc.
_____ Veterans Boulevard
South San Francisco, CA 94080
Attn: _____
Telecopier: (650) _____
[as specified by Tenant in written notice at or about the Phase I Rent Commencement Date]

with a copy to:

Cooley Godward LLP
4401 Eastgate Mall
San Diego, CA 92121-1909
Attn: Elizabeth A. Willes, Esq.
Telecopier: (858) 550-6420

To Landlord:

Slough BTC, LLC
33 West Monroe Street, Suite 2000
Chicago, IL 60603
Attn: William Rogalla
Telecopier: (312) 558-9041

444 NORTH MICHIGAN AV.
SUITE 3730
CHICAGO, IL 60611

with a copy to:

Folger Levin & Kahn LLP
Embarcadero Center West
275 Battery Street, 23rd Floor
San Francisco, CA 94111
Attn: Donald E. Kelley, Jr., Esq.
Telecopier: (415) 986-2827

and a copy to:

Britannia Management Services, Inc.
1939 Harrison Street, Suite 715
Oakland, CA 94612
Telecopier: (510) 763-6262

or to such other address as may be contained in a notice at least fifteen (15) days prior to the address change from either party to the other given pursuant to this Section. Rental payments and other sums required by this Lease to be paid by Tenant shall be delivered to Landlord in care of Britannia Management Services, Inc. at the address provided above in this Section, or to such other address as Landlord may from time to time specify in writing to Tenant, and shall be deemed to be paid only upon actual receipt.

21.2 Successors And Assigns. The obligations of this Lease shall run with the land, and this Lease shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns, except that the original Landlord named herein and each successive Landlord under this Lease shall be liable only for obligations accruing during the period of its ownership of the Property, said liability terminating upon termination of such ownership and passing to the successor lessor.

21.3 No Waiver. The failure of Landlord to seek redress for violation, or to insist upon the strict performance, of any covenant or condition of this Lease shall not be deemed a waiver of such violation, or prevent a subsequent act which would originally have constituted a violation from having all the force and effect of an original violation.

21.4 Severability. If any provision of this Lease or the application thereof is held to be invalid or unenforceable, the remainder of this Lease or the application of such provision to persons or circumstances other than those as to which it is invalid or unenforceable shall not be affected thereby, and each of the provisions of this Lease shall be valid and enforceable, unless enforcement of this Lease as so invalidated would be unreasonable or grossly inequitable under all the circumstances or would materially frustrate the purposes of this Lease.

21.5 Litigation Between Parties. In the event of any litigation or other dispute resolution proceedings between the parties hereto arising out of or in connection with this Lease, the prevailing party shall be reimbursed for all reasonable costs, including, but not limited to, reasonable accountants' fees and attorneys' fees, incurred in connection with such proceedings (including, but not limited to, any appellate proceedings relating thereto) or in connection with the enforcement of any judgment or award rendered in such proceedings. "Prevailing party" within the meaning of this Section shall include, without limitation, a party who dismisses an action for recovery hereunder in exchange for payment of the sums allegedly due, performance of covenants allegedly breached or consideration substantially equal to the relief sought in the action.

21.6 Surrender. A voluntary or other surrender of this Lease by Tenant, or a mutual termination thereof between Landlord and Tenant, shall not result in a merger but shall, at the option of Landlord, operate either as an assignment to Landlord of any and all existing subleases and subtenancies, or a termination of all or any existing subleases and subtenancies. This provision shall be contained in any and all assignments or subleases made pursuant to this Lease.

21.7 Interpretation. The provisions of this Lease shall be construed as a whole, according to their common meaning, and not strictly for or against Landlord or Tenant. The captions preceding the text of each Section and subsection hereof are included only for convenience of reference and shall be disregarded in the construction or interpretation of this Lease.

21.8 Entire Agreement. This written Lease, together with the exhibits hereto, contains all the representations and the entire understanding between the parties hereto with respect to the subject matter hereof. Any prior correspondence, memoranda or agreements are replaced in total by this Lease and the exhibits hereto. This Lease may be modified only by an agreement in writing signed by each of the parties.

21.9 Governing Law. This Lease and all exhibits hereto shall be construed and interpreted in accordance with and be governed by all the provisions of the laws of the State of California.

21.10 No Partnership. The relationship between Landlord and Tenant is solely that of a lessor and lessee. Nothing contained in this Lease shall be construed as creating any type or manner of partnership, joint venture or joint enterprise with or between Landlord and Tenant.

21.11 Financial Information. From time to time Tenant shall promptly provide directly to prospective lenders and purchasers of the Property and/or Center designated by Landlord such financial information pertaining to the financial status of Tenant as Landlord may reasonably request; provided, Tenant shall be permitted to provide such financial information in a manner which Tenant deems reasonably necessary to protect the confidentiality of such information. In addition, from time to time, Tenant shall provide Landlord with such financial information pertaining to the financial status of Tenant as Landlord may reasonably request. Landlord agrees that all financial information supplied to Landlord by Tenant shall be treated as confidential material, and shall not be disseminated to any party or entity (including any entity affiliated with Landlord) without Tenant's prior written consent, except that Landlord shall be entitled to provide such information, subject to reasonable precautions to protect the confidential nature thereof, (i) to Landlord's partners and professional advisors, solely to use in connection with Landlord's execution and enforcement of this Lease, and (ii) to prospective lenders and/or purchasers of the Property and/or Center, solely for use in connection with their bona fide consideration of a proposed financing or purchase of the Property and/or Center. For purposes of this Section, without limiting the generality of the obligations provided herein, it shall be deemed reasonable for Landlord to request copies of Tenant's most recent audited annual financial statements, or, if audited statements have not been prepared, unaudited financial statements for Tenant's most recent fiscal year, accompanied by a certificate of Tenant's chief financial officer that such financial statements fairly present Tenant's financial condition as of the date(s) indicated. Notwithstanding any other provisions of this Section 21.11, during any period in which Tenant has outstanding a class of publicly traded securities and is filing with the Securities and Exchange Commission, on a regular basis, Forms 10Q and 10K and any other periodic filings required under the Securities Exchange Act of 1934, as amended, it shall constitute sufficient compliance under this Section 21.11 for Tenant to furnish Landlord with copies of such periodic filings substantially concurrently with the filing thereof with the Securities and Exchange Commission.

Landlord and Tenant recognize the need of Tenant to maintain the confidentiality of information regarding its financial status and the need of Landlord to be informed of, and to provide to prospective lenders and purchasers of the Property and/or Center financial information pertaining to, Tenant's financial status. Landlord and Tenant agree to cooperate with each other in achieving these needs within the context of the obligations set forth in this Section. Landlord also acknowledges and agrees that Tenant's obligations to furnish information to Landlord under this Section are in all events subject to Tenant's compliance with, and may therefore be limited by, applicable securities laws.

21.12 Costs. If Tenant requests the consent of Landlord under any provision of this Lease for any act that Tenant proposes to do hereunder, including, without limitation, assignment of this Lease or subletting of any one or more of the Buildings or any part thereof, Tenant shall, as a condition to doing any such act and the receipt of such consent, reimburse Landlord promptly for any and all reasonable costs and expenses incurred by Landlord in connection therewith, including, without limitation, reasonable attorneys' fees.

21.13 Time. Time is of the essence of this Lease, and of every term and condition hereof.

21.14 Rules And Regulations. Tenant shall observe, comply with and obey, and shall cause its employees, agents and, to the best of Tenant's ability, invitees to observe, comply with and obey such rules and regulations as Landlord may promulgate from time to time for the safety, care, cleanliness, order and use of the Improvements, the Property and the Center.

21.15 Brokers. Landlord agrees to pay a brokerage commission to CRESA Partners ("Tenant's Broker"), in connection with the consummation of this Lease in the amount of $6.50 per rentable square foot, payable 50% upon mutual execution of this Lease and 50%, as to each Building, upon the Rent Commencement Date for such Building or, in the case of the Phase II Building, upon the Rent Commencement Date for each phase of the Phase II Building (in proportion to the ratio between the square footage covered by such phase and the total square footage of the Phase II Building). In addition, in the event Tenant exercises the Expansion

Option, Landlord shall pay to Tenant's Broker a commission on the same terms as set forth in the first sentence of this Section 21.15. Tenant shall be solely responsible for any claims for brokerage commissions or similar compensation by Tenant's Broker and/or Mark Pearson in excess of the amount described in the preceding two sentences. Each party represents and warrants that no other broker participated in the consummation of this Lease and agrees to indemnify, defend and hold the other party harmless against any liability, cost or expense, including, without limitation, reasonable attorneys' fees, arising out of any claims for brokerage commissions or other similar compensation in connection with any conversations, prior negotiations or other dealings by the indemnifying party with any other broker.

21.16 Memorandum Of Lease. At any time during the term of this Lease, either party, at its sole expense, shall be entitled to record a memorandum of this Lease and, if either party so elects, both parties agree to cooperate in the preparation, execution, acknowledgement and recordation of such document in reasonable form.

21.17 Corporate Authority. The person signing this Lease on behalf of Tenant warrants that he or she is fully authorized to do so and, by so doing, to bind Tenant.

21.18 Execution and Delivery. This Lease may be executed in one or more counterparts and by separate parties on separate counterparts, but each such counterpart shall constitute an original and all such counterparts together shall constitute one and the same instrument.

21.19 Survival. Without limiting survival provisions which would otherwise be implied or construed under applicable law, the provisions of Sections 2.5, 9.4, 11.2, 11.3, 11.4, 13.6, 14.6, 21.5 and 21.20 hereof shall survive the termination of this Lease with respect to matters occurring prior to the expiration of this Lease.

21.20 Parking and Traffic.

(a) Landlord has advised Tenant that the approval of the Britannia Oyster Point project by the City of South San Francisco was conditioned upon, among other things, Landlord's development and implementation of a Transportation Demand Management Plan (the "TDMP") pursuant to which Landlord is required to undertake various measures to try to reduce the volume of traffic generated by the Center. Landlord covenants with Tenant that Landlord will use reasonable efforts to try to reduce the volume of traffic generated by the Center, as contemplated by the TDMP, including (but not limited to) substantially complying with any specific measures required by the City of South San Francisco or its Redevelopment Agency. Tenant hereby agrees (i) to designate one of its employees to act as a liaison with Landlord's designated transportation coordinator in facilitating and coordinating such programs as may be required from time to time by governmental agencies and/or by the terms of the TDMP to reduce the traffic generated by the Center (as required by the City of South San Francisco as part of the conditions of approval of this project) and to facilitate and encourage the use of public transportation, (ii) to make reasonable efforts to encourage cooperation and participation by Tenant's employees in the programs implemented from time to time pursuant to the TDMP, including (but not limited to) programs described in this Section 21.20, and (iii) to cooperate with Landlord's designated transportation coordinator in identifying an appropriate area within each Building where an information kiosk can be maintained for the dissemination of transportation-related information, to be updated from time to time by Landlord's designated transportation coordinator.

(b) The Center is presently intended to contain a maximum of approximately 2.9 parking spaces per 1,000 square feet of rentable area in the buildings to be constructed on the Property, subject to approval by appropriate agencies of the City of South San Francisco. Consistent with the TDMP, a specified percentage (presently anticipated to be ten percent (10%)) of these spaces will be designated for carpool, vanpool and clean fuel vehicles. Among other things, the City of South San Francisco requires that Landlord charge a monthly parking fee for each parking space allocated to tenants and their employees. The monthly fee per parking space shall be [REDACTED] per parking space for each Building for the first five (5) years after the Rent Commencement Date for such Building, and shall increase to [REDACTED] per parking space for each Building immediately after the fifth (5th) anniversary of the Rent Commencement Date for such Building. In accordance with the policies and requirements of the City of South San Francisco, Landlord recommends that Tenant pass through these parking charges to Tenant's employees using the spaces. (Thus, for example, in years one (1) through five (5) of the Lease term, assuming an aggregate of 280,200 square feet in the Buildings and 2.9 spaces of parking per 1,000 square feet in the Center, Tenant would have 813 allocable parking spaces at [REDACTED] per space per month, for a total monthly parking fee of. [REDACTED]

(c) On or about the date Tenant commences business in the respective Buildings, Landlord intends to provide Tenant,, through Landlord's designated transportation coordinator, with an appropriate number of packets of employee transportation information, presently expected to include (but not be limited to) information about carpool parking; schedules and maps for SamTrans, Caltrain, BART and shuttle services operating to and from the Property; and a bicycle map. Landlord shall thereafter cause its designated transportation coordinator to provide updated copies of the employee transportation information packet to Tenant from time to time, as appropriate, and to make additional copies of the packet available to Tenant from time to time, upon request by Tenant, for new employees. Tenant shall distribute copies of the employee transportation information packet to all employees commuting to the Property at the time Tenant commences business in the respective Buildings, shall thereafter distribute copies of the packet to new employees from time to time and shall distribute updated packets to all employees from time to time when and as such updated packets are furnished to Tenant by Landlord's designated transportation coordinator.

(d) Landlord is required to conduct, pursuant to the TDMP, annual surveys of its tenants and their employees regarding both quantitative and qualitative aspects of commuting and transportation patterns at the Center. Landlord anticipates that these surveys will be prepared, administered and analyzed by an independent transportation consultant retained by the City of South San Francisco, and will be summarized by that consultant in an annual report to be submitted by that consultant to the City of South San Francisco and its Redevelopment Agency with respect to the Center. Tenant shall cooperate with Landlord, with Landlord's designated transportation coordinator and with any independent transportation consultant retained by the City, and shall use reasonable efforts to cause Tenant's employees to so cooperate, in the completion and return of such surveys from time to time, when and as requested by Landlord or its designated transportation coordinator or the independent consultant. Tenant acknowledges and understands that employees who fail to respond to such surveys will be counted as drive-alone commuters.

(e) Landlord has advised Tenant that pursuant to conditions imposed by the City of South San Francisco and its Redevelopment Agency, Landlord may incur financial penalties if implementation of the TDMP at the Center fails to achieve a target rate of at least thirty-five percent (35%) alternative mode transportation usage (the "Alternative Mode Standard") by employees working at the Center, as reflected in the surveys conducted pursuant to Section 21.20(d) above. Any such financial penalties shall be imposed by the City of South San Francisco Redevelopment Agency (the "Redevelopment Agency"), in its sole discretion, based on its review of the annual reports submitted from time to time pursuant to Section 21.20(d) above. The amount of such financial penalties is presently set at $15,000 per year for each percentage point (if any) by which, after a phase-in period (two (2) years after the granting of a certificate of occupancy) for each building, the aggregate rate of alternative mode transportation usage by employees throughout the Center falls short of the Alternative Mode Standard. If any such financial penalties are imposed on Landlord for failure to meet the Alternative Mode Standard on a Center-wide basis for any applicable survey period, then Landlord shall be entitled to pass such financial penalties through to all tenants of the Center whose employees have failed to demonstrate (pursuant to the applicable surveys) compliance with the Alternative Mode Standard for the applicable period (each such tenant being hereinafter referred to as a "Noncomplying Tenant" for that period), in which event the actual penalty amount shall be allocated among the Noncomplying Tenants for the applicable period in the following manner: Each Noncomplying Tenant shall bear a portion of the applicable penalty amount equal to a fraction, the numerator of which is the number of employees by which such Noncomplying Tenant fell short of meeting the Alternative Mode Standard for the applicable period and the denominator of which is the sum of the respective numbers of employees by which all Noncomplying Tenants, in the aggregate, fell short of meeting the Alternative Mode Standard for the applicable period. Each such Noncomplying Tenant shall pay its share of the applicable penalty amount to Landlord within thirty (30) days after receipt of written demand from Landlord, accompanied by supporting documentation evidencing the applicable penalty amount, as provided by the Redevelopment Agency or its consultant, and demonstrating in reasonable detail the calculation of such Noncomplying Tenant's share of that penalty amount. Under no circumstances shall Tenant be required to bear any portion of any penalties

contemplated in this paragraph with respect to any period as to which Tenant can demonstrate that its employees, as evidenced by the applicable survey(s) for that period, met the Alternative Mode Standard. If Tenant subleases any portion(s) of any of the Buildings from time to time, then for purposes of this Section 21.20, as between Tenant and Landlord, Tenant shall be fully and solely responsible for compliance by its subtenant(s) and their employees with the requirements of this Section 21.20, and all surveys and reports submitted by Tenant to Landlord or its designated transportation coordinator or to the independent consultant pursuant to this Section 21.20 shall cover the entire Buildings (other than the retail space in the Phase III Building) and shall report figures for Tenant and its subtenant(s) on an aggregate basis. Nothing in the preceding sentence, however, shall preclude Tenant, as between itself and its subtenant(s), from allocating to such subtenant(s) in the applicable sublease agreement any compliance obligations and/or penalty reimbursement obligations under this Section 21.20(e), but no such allocation shall be binding on Landlord or require Landlord, its designated transportation

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coordinator or the independent consultant to deal directly with any such subtenant(s) regarding the matters addressed in this Section 21.20. If Tenant believes, reasonably and in good faith, that there are circumstances particular to the nature of Tenant's business operations that would justify a mitigation of penalties and/or a modification of the implementation of the TDMP as applied to Tenant's business, and requests in writing (with supporting information describing, in reasonable detail, the circumstances on which Tenant is relying) that Landlord present such mitigation or modification arguments to the Redevelopment Agency, then Landlord shall use reasonable and good faith efforts to present or cause its designated transportation coordinator to present such mitigation and/or modification arguments, but Tenant acknowledges and understands that any decision with respect to such mitigation and/or modification arguments will be in the sole discretion of the Redevelopment Agency and agrees that Landlord shall have no liability to Tenant if such mitigation and/or modification arguments are not accepted by the Redevelopment Agency.

IN WITNESS WHEREOF, the parties hereto have executed this Lease as of the day and year first set forth above.

"Landlord"	"Tenant"
SLOUGH BTC, LLC, a Delaware limited liability company	TULARIK INC., a Delaware corporation
By: Slough Estates USA Inc., a Delaware corporation, Its Manager	By: _____ Its: CEO
By: _____ Its: VP	By: _____ Its: EVP

EXHIBITS

EXHIBIT A	Real Property Description (Center)
EXHIBIT B	Site Plan
EXHIBIT C	Workletter
EXHIBIT D	Estimated Construction Schedules
EXHIBIT E	Acknowledgment of Rent Commencement Date

EXHIBIT A

REAL PROPERTY DESCRIPTION (CENTER)

All that certain real property in the City of South San Francisco, County of San Mateo, State of California, more particularly described as follows:

Parcels 2, 3, 5 and 6 as shown on the Bay West Cove Final Subdivision Map, Parcel Map No. 97-027, recorded January 22, 1998 in Book 70, at pages 33-40, File No. 98-008274, Official Records of San Mateo County, California.

EXHIBIT C

WORKLETTER

This Workletter ("Workletter") constitutes part of the Build-to-Suit Lease dated as of December 20, 2001 (the "Lease") between SLOUGH BTC, LLC, a Delaware limited liability company ("Landlord"), and TULARIK INC., a Delaware corporation ("Tenant"). The terms of this Workletter are incorporated in the Lease for all purposes.

1. Defined Terms. As used in this Workletter, the following capitalized terms have the following meanings:

(a) Approved Plans: Plans and specifications prepared by the applicable Architect for the respective Improvements and approved by Landlord and, to the extent applicable, Tenant in accordance with Paragraph 2 of this Workletter, subject to further modification from time to time to the extent provided in and in accordance with such Paragraph 2.

(b) Architect: Chamorro Design Group, or any other architect selected by Landlord in its sole discretion, with respect to the respective Building Shells, the Site Improvements and any other Improvements which Landlord is to design pursuant to this Workletter; any architect selected by Tenant with the written approval of Landlord (which shall not be unreasonably withheld or delayed) with respect to the Tenant Improvements and any other Improvements which Tenant is to design pursuant to the this Workletter.

(c) Building Shells: The shells of the respective Buildings, as more fully described in Schedule C-1 attached to this Workletter, including the shell of the Connector Bridge (as described in Section 1.1(a) of the Lease).

(d) Change Order Request: See definition in Paragraph 2(e)(ii) hereof.

(e) Cost of Improvement: See definition in Paragraph 2(c) hereof.

(f) Final Completion Certificate: See definition in Paragraph 3(b) hereof.

(g) Final Working Drawings: See definition in Paragraph 2(a) hereof.

(h) General Contractor: Hathaway Dinwiddie Construction Company, or any other general contractor selected by Landlord in its sole discretion, with respect to Landlord's Work, The General Contractor with respect to Tenant's Work shall be selected by Tenant, subject to Landlord's approval (not to be unreasonably withheld or delayed), as contemplated in Paragraph 5(a) hereof.

(i) Improvements: The Building Shells, Site Improvements, Tenant Improvements and other improvements shown on the Approved Plans from time to time and to be constructed on the Property pursuant to the Lease and this Workletter.

(j) Landlord Delay: See definition in Paragraph 10 hereof.

(k) Landlord's Work: The Building Shells and Site Improvements, and any other Improvements which Landlord is to construct or install pursuant to this Workletter (including, but not limited to, any Tenant Improvements identified in Schedule C-2 to this Workletter as being Landlord's responsibility to construct) or by mutual agreement of Landlord and Tenant from time to time.

(l) Punch List Work: Minor corrections of construction or decoration details, and minor mechanical adjustments, that are required in order to cause any applicable portion of the Improvements as constructed to conform to the Approved Plans in all material respects and that do not materially interfere with Tenant's use or occupancy of the applicable Building and the Property.

(m) Site Improvements: The parking areas, driveways, landscaping and other improvements to the Common Areas of the Property that are depicted on Exhibit B to the Lease (as the same may be modified by Landlord from time to time pursuant to the process of development and approval of the Approved Plans).

(n) Structural Completion Certificate: See definition in Paragraph 3(a) hereof.

(o) Tenant Delay: Any of the following types of delay in the completion of construction of the Building Shell(s):

(i) Any delay resulting from Tenant's failure to furnish, within the time frames required in the Estimated Construction Schedules attached as Exhibit D to the Lease (or, in the case of any requests for which no specific time frame is specified in such Estimated Construction Schedules, within the time frame reasonably specified in writing by Landlord or its project manager in making such request), information reasonably requested by Landlord or by Landlord's project manager (Project Management Advisors, Inc. or such other person or entity as Landlord may designate from time to time) in connection with the design or construction of the respective Building Shells, or from Tenant's failure to approve within the time frames required in the Estimated Construction Schedules attached as Exhibit D to the Lease (or, in the case of any requests for which no specific time frame is specified in such Estimated Construction Schedules, within the time frame reasonably specified in writing by Landlord or its project manager in requesting such approval) any matters requiring approval by Tenant;

(ii) Any delay resulting from changes in Landlord's Final Working Drawings and/or Landlord's Approved Plans with respect to the Phase IA Building and/or the Phase IB Building in order to accommodate the construction of the Connector Bridge, under the circumstances and to the extent provided in Paragraph 2(e)(iii) of this Workletter;

(iii) Any delay resulting from Change Order Requests initiated by Tenant, including any delay resulting from the need to revise any drawings or obtain further governmental approvals as a result of any such Change Order Request; or

(iv) Any delay of any other kind or nature caused by Tenant (or Tenant's contractors, agents or employees) or resulting from the performance of Tenant's Work.

(p) Tenant Improvements: The improvements to or within the respective Buildings, other than improvements constituting part of the respective Building Shells, shown on the Approved Plans from time to time and to be constructed by Tenant (except as otherwise provided herein) pursuant to the Lease and this Workletter, including (but not limited to) the improvements described in Schedule C-2 attached to this Workletter.

(q) Tenant's Work: All of the Improvements other than those constituting Landlord's Work, and such other materials and improvements as Tenant deems necessary or appropriate for Tenant's use and occupancy of the respective Buildings.

(r) Unavoidable Delays: Delays due to acts of God, action or inaction of public agencies, labor disputes, strikes, fires, freight embargoes, rainy or stormy weather (but only to the extent such weather prevents the affected party from conducting any substantial element of its construction work for a period of at least one full work day), inability to obtain supplies, materials, fuels or permits, delays of contractors or subcontractors, or other causes or contingencies beyond the reasonable control of Landlord or Tenant, as applicable.

(s) Work Deadlines: The target dates for performance by the applicable party of the steps listed in the Estimated Construction Schedules for the respective Buildings attached as Exhibit D to the Lease.

(t) Capitalized terms not otherwise defined in this Workletter shall have the definitions set forth in the Lease.

2. Plans, Cost of Improvements and Construction. Landlord and Tenant shall comply with the procedures set forth in this Paragraph 2 in preparing, delivering and approving matters relating to the Improvements.

(a) Approved Plans and Working Drawings for Landlord's Work. Landlord shall promptly and diligently (and in all events prior to any applicable Work Deadlines, subject to Tenant Delays and Unavoidable Delays) prepare or cause to be prepared plans and specifications for the Improvements constituting Landlord's Work and for all other Improvements (if any) for which Landlord is expressly assigned design responsibility under Schedule C-2 to this Workletter. Such plans and specifications shall not be subject to Tenant's approval, except to the extent (and only to the extent) that Landlord's Work includes, pursuant to this Workletter or by other mutual agreement of Landlord and Tenant, any portion of the Tenant Improvements. Landlord shall deliver copies of such plans and specifications to Tenant for Tenant's approval (but only to the extent provided in the preceding sentence) and information, to assist Tenant in providing any information and making any decisions necessary to be provided or made by Tenant in order to permit preparation of Landlord's Final Working Drawings as hereinafter defined, and to assist Tenant in preparing plans, specifications and drawings for Tenant's Work as hereinafter set forth. Following approval of such plans and specifications by Landlord and, if applicable, by Tenant (as so approved, the "Landlord's Approved Plans"), Landlord shall then prepare or cause to be prepared, on or before the applicable Work Deadline (assuming timely delivery by Tenant of all information and decisions required to be furnished or made by Tenant in order to permit complete preparation of Landlord's Final Working Drawings), final detailed working drawings and specifications for the Improvements constituting Landlord's Work, including structural, fire protection, life safety, mechanical and electrical working drawings and final architectural drawings (collectively, "Landlord's Final Working Drawings''). Landlord's Final Working Drawings shall substantially conform to the Landlord's Approved Plans. Landlord's Final Working Drawings shall not be subject to Tenant's approval, except to the extent (and only to the extent), as noted above, that Landlord's Work includes, pursuant to this Workletter or by other mutual agreement of Landlord and Tenant, any portion of the Tenant Improvements. Landlord shall deliver copies of Landlord's Final Working Drawings to Tenant for Tenant's approval (but only to the extent provided in the preceding sentence) and information, and to assist Tenant in preparing plans, specifications and drawings for Tenant's Work as hereinafter set forth. Landlord's obligation to deliver Landlord's Final Working Drawings to Tenant within the time period set forth above shall be extended for any delay encountered by Landlord as a result of a request by Tenant for changes in accordance with the procedure set forth below, any other Tenant Delays, or any Unavoidable Delays. To the extent Tenant has any right of approval over Landlord's proposed plans and specifications or Landlord's proposed Final Working Drawings pursuant to the foregoing provisions, no later than the applicable Work Deadline (assuming timely delivery of plans and drawings by Landlord), Tenant shall either approve (to the extent of Tenant's approval right) Landlord's proposed plans and specifications or Landlord's proposed Final Working Drawings, as applicable, or set forth in writing with particularity any changes necessary to bring the aspects of such proposed plans and specifications or proposed Landlord's Final Working Drawings over which Tenant has a right of approval into a form which will be acceptable to Tenant or, in the case of Landlord's Final Working Drawings, into substantial conformity with the Landlord's Approved Plans. Notwithstanding any other provisions of this paragraph (other than the final sentence thereof), in no event shall Tenant have the right to object to any aspect of the Landlord's proposed plans and specifications or proposed Landlord's Final Working Drawings (including, but not limited to, any subsequently proposed changes therein from time to time) that is necessitated by applicable law or as a condition of any governmental or other third-party approvals that are required to be obtained in connection with Landlord's Work, or that is required as a result of unanticipated conditions encountered in the course of construction of Landlord's Work. Failure of Tenant to deliver to Landlord written notice of disapproval and specification of required changes (to the extent Tenant has a right of approval or objection under this paragraph) on or before the applicable Work Deadline shall constitute and be deemed to be approval of Landlord's proposed plans and specifications or proposed Landlord's Final Working Drawings, as applicable. Upon approval, actual or deemed, of Landlord's Final Working Drawings by Landlord and Tenant (to the extent Tenant has such a right of approval under this paragraph), Landlord's Final Working Drawings shall be deemed to be incorporated in and considered part of the Landlord's Approved Plans, superseding (to the extent of any inconsistencies) any inconsistent features of the previously existing Landlord's Approved Plans, Notwithstanding the foregoing provisions of this paragraph, the parties acknowledge and agree as follows: (i) as to the Building Shells for the Phase IA and Phase IB Buildings (excluding the Connector Bridge, which has not yet been designed), the plans and specifications for which building permits have already been issued by the City of South San Francisco constitute Landlord's Approved Plans for such Building Shells, subject to any changes that may be required in connection with the design and construction of the Connector Bridge; (ii) as to the Building Shell for the Phase II Building, the plans and specifications filed with Landlord's pending permit application with the City of South San Francisco constitute Landlord's Approved Plans for such Building Shell, subject to any changes

that may be required by the City of South San Francisco in connection with the issuance of a building permit for such Building Shell; and (iii) Tenant shall have a right of approval over the plans and specifications to be prepared by Landlord for the shell of the Connector Bridge which approval shall not be unreasonably withheld and which right of approval shall be exercised within any applicable Work Deadlines or, to the extent there is no specifically applicable Work Deadline, within five (5) business days after delivery of plans and specifications for review by Tenant.

(b) Approved Plans and Working Drawings for Tenant's Work. Tenant shall promptly and diligently cause to be prepared and delivered to Landlord, for approval, a space plan and detailed plans and specifications for the Improvements constituting Tenant's Work (as so approved, the "Tenant's Approved Plans"). Landlord shall approve or disapprove of Tenant's Plans, following receipt thereof from Tenant, within the applicable number of days specified on the applicable Estimated Construction Schedule(s) attached as Exhibit D to the Lease. Following mutual approval of the Tenant's Approved Plans, Tenant shall then cause to be prepared and delivered to Landlord, for approval, final working drawings and specifications for the Improvements constituting Tenant's Work, including any applicable life safety, mechanical and electrical working drawings and final architectural drawings (collectively, "Tenant's Final Working Drawings"). Tenant's Final Working Drawings shall substantially conform to the Tenant's Approved Plans. Landlord shall, within the applicable number of days specified on the applicable Estimated Construction Schedule(s) attached as Exhibit D to the Lease, either approve Tenant's Final Working Drawings or set forth in writing with particularity any changes necessary to bring Tenant's Final Working Drawings into substantial conformity with Tenant's Approved Plans or into a form which will be acceptable to Landlord. Upon approval of Tenant's Final Working Drawings by Landlord and Tenant, Tenant's Final Working Drawings shall be deemed to be incorporated in and considered part of the Tenant's Approved Plans, superseding (to the extent of any inconsistencies) any inconsistent features of the previously existing Tenant's Approved Plans.

(c) Cost of Improvements. "Cost of Improvement" shall mean, with respect to any item or component for which a cost must be determined in order to allocate such cost, or an increase in such cost, to Landlord and/or Tenant pursuant to this Workletter, the sum of the following (unless otherwise agreed in writing by Landlord and Tenant with respect to any specific item or component or any category of items or components): (i) all sums paid to contractors or subcontractors for labor and materials furnished in connection with construction of such item or component; (ii) all costs, expenses, payments, fees and charges (other than penalties) paid or incurred to or at the direction of any city, county or other governmental or quasi-governmental authority or agency which are required to be paid in order to obtain all necessary governmental permits, licenses, inspections and approvals relating to construction of such item or component; (iii) engineering and architectural fees for services rendered in connection with the design and construction of such item or component (including, but not limited to, the applicable Architect for such item or component and an electrical engineer, mechanical engineer and civil engineer); (iv) sales and use taxes; (v) testing and inspection costs; (vi) the cost of power, water and other utility facilities and the cost of collection and removal of debris required in connection with construction of such item or component; (vii) all other "hard" costs incurred in the construction of such item or component in accordance with the applicable Approved Plans and this Workletter; and (viii)as to the Tenant Improvements, all costs and items specifically described as being at Tenant's cost in Schedules C-l and C-2 attached hereto. Notwithstanding the foregoing provisions, however, Cost of Improvement shall not include any project management fee relating to the construction of the applicable item or component, except to the extent of any project management fees expressly set forth in Schedules C-l and C-2 attached hereto.

(d) Construction of Landlord's Work. Promptly following approval of Landlord's Final Working Drawings, Landlord shall apply for and use reasonable efforts to obtain the necessary permits and approvals to allow construction of all Improvements constituting Landlord's Work. Upon receipt of such permits and approvals, Landlord shall, at Landlord's sole expense (except as otherwise provided in the Lease or in this Workletter), diligently construct and complete the Improvements constituting Landlord's Work substantially in accordance with the Landlord's Approved Plans, subject to Unavoidable Delays and Tenant Delays (if any). Such construction shall be performed in a neat and workmanlike manner and shall conform to all applicable governmental codes, laws and regulations in force at the time such work is completed. Without limiting the generality of the foregoing, Landlord shall be

responsible for compliance of all Improvements designed and constructed by Landlord with the requirements of the Americans with Disabilities Act and all similar or related requirements pertaining to access by persons with disabilities. Landlord shall have the right, in its sole discretion, to decide whether and to what extent to use union labor on or in connection with Landlord's Work and shall use the General Contractor designated or selected pursuant to Paragraph 1(h) to construct all Improvements constituting Landlord's Work.

(e) Changes.

(i) If Landlord determines at any time that changes in Landlord's Final Working Drawings or in any other aspect of the Landlord's Approved Plans relating to any item of Landlord's Work are required as a result of applicable law or governmental requirements, or at the insistence of any other third party whose approval may be required with respect to the Improvements, or are required as a result of unanticipated conditions encountered in the course of construction, then Landlord shall promptly (A) advise Tenant of such circumstances and (B) cause revised Landlord's Approved Plans and/or Landlord's Final Working Drawings, as applicable, reflecting such changes to be prepared by Architect and submitted to Tenant, for Tenant's information (and to assist Tenant in determining the need for any related changes in Tenant's Approved Plans) and, to the extent such changes relate to any Tenant Improvements being constructed by Landlord pursuant to mutual agreement of Landlord and Tenant or are subject to Tenant's approval pursuant to the final sentence of this paragraph, for approval by Tenant in accordance with the procedure contemplated in Paragraph 2(a) hereof. Upon final approval of such revised drawings by Landlord and Tenant (if applicable), Landlord's Final Working Drawings and/or the Landlord's Approved Plans shall be deemed to be modified accordingly. In the case of any such changes in Landlord's Final Working Drawings and/or Landlord's Approved Plans that are required as a result of applicable law or governmental requirements, or are required at the insistence of any other third party whose approval is required with respect to the Improvements, or are required as a result of unanticipated conditions encountered in the course of construction, Tenant shall have no approval right and Landlord shall have no liability or responsibility for any costs or cost increases incurred by Tenant as a result of any such required changes. However, in the case of any changes in Landlord's Final Working Drawings and/or Landlord's Approved Plans that are merely deemed desirable by Landlord without being required by any of the circumstances described in the preceding sentence, (A) Landlord shall not make any such change without Tenant's written approval, which approval shall not be unreasonably withheld and which right of approval shall be exercised within five (5) business days after Tenant's receipt of Landlord's request for approval of the proposed change, and (B) Landlord shall be responsible for all actual costs or cost increases reasonably incurred by Tenant as a result of such changes and shall reimburse Tenant for any such actual costs or cost increases promptly following receipt of Tenant's written request for such reimbursement, accompanied by documentation reasonably supporting Tenant's claimed costs or cost increases and their relationship to the changes made by Landlord.

(ii) If Tenant at any time desires any changes, alterations or additions to the Landlord's Approved Plans or Landlord's Final Working Drawings with respect to any of Landlord's Work, Tenant shall submit a detailed written request to Landlord specifying such changes, alterations or additions (a "Change Order Request"). Upon receipt of any such request, Landlord shall promptly notify Tenant of (A) whether the matters proposed in the Change Order Request are approved by Landlord (which approval shall not be unreasonably withheld as to any matters relating to Tenant Improvements which are being constructed by Landlord pursuant to mutual agreement of Landlord and Tenant, but may be granted or withheld by Landlord in its sole discretion as to any other aspects of Landlord's Work), (B) Landlord's estimate of the number of days of delay, if any, which shall be caused by such Change Order Request if implemented (including, without limitation, delays due to the need to obtain any revised plans or drawings and any governmental approvals), and (C) Landlord's estimate of the increase, if any, which shall occur in the Cost of Improvement for the items or components affected by such Change Order Request if such Change Order Request is implemented (including, but not limited to, any costs of compliance with laws or governmental regulations that become applicable because of the implementation of the Change Order Request). If Landlord approves the Change Order Request and Tenant notifies Landlord in writing, within five (5) business days after receipt of such notice from Landlord, of Tenant's approval of the Change Order Request (including the estimated delays and cost increases, if any, described in Landlord's notice), then Landlord shall cause such Change Order Request to be implemented and Tenant shall be responsible for all costs or cost increases resulting from or attributable to the implementation of the Change Order Request, subject to the provisions of Paragraph 4 hereof. If Tenant fails to notify Landlord in writing of Tenant's approval of such Change Order Request within said five (5) business day period, then such Change Order Request shall be deemed to be withdrawn and shall be of no further effect.

(iii) If Landlord determines at any time in the course of design and construction of the Connector Bridge that changes in Landlord's Final Working Drawings or in any other aspect of the Landlord's Approved Plans for the Phase IA Building and/or the Phase IB Building are required in order to accommodate the construction of the Connector Bridge, then Landlord shall promptly (A) advise Tenant of such circumstances and (B) notify Tenant of Landlord's estimate of the number of days of delay, if any, which shall be caused in Landlord's achievement of structural completion for the Phase IA Building and/or the Phase IB Building as a result of such changes if implemented (including, without limitation, delays due to the need to obtain any revised plans or drawings and any governmental approvals) (the "Estimated Delay"). If Tenant notifies Landlord in writing, within five (5) business days after receipt of such notice from Landlord, of Tenant's approval of the Connector Bridge design which requires such changes and of Tenant's desire to have Landlord proceed with the construction of the Connector Bridge notwithstanding the Estimated Delay (if any), then Landlord shall cause such changes to be implemented and the amount of the Estimated Delay (if any) as specified in Landlord's notice shall constitute a Tenant Delay; provided, however, that notwithstanding the characterization of such changes as a Tenant Delay and notwithstanding any contrary provisions of the Lease or of this Workletter, under no circumstances shall Tenant be responsible for any costs or cost increases resulting from or attributable to the implementation of the changes described in this subparagraph (iii). If Tenant fails to notify Landlord in writing, within said five (5) business day period, of Tenant's approval of the Connector Bridge design which requires such changes and of Tenant's desire to have Landlord proceed with the construction of the Connector Bridge notwithstanding the estimated delays (if any), then such design changes shall be deemed to be disapproved and Landlord shall be under no further obligation to construct the Connector Bridge.

(iv) If Tenant at any time desires to make any changes, alterations or additions to the Tenant's Approved Plans, such changes, alterations or additions shall be subject to approval by Landlord in the same manner as the original Tenant's Approved Plans as provided above.

3. Completion.

(a) When Landlord receives written certification from Architect that construction of the foundation, structural slab on grade (except to the extent delayed at Tenant's request to accommodate Tenant's design requirements and/or any underslab aspects of Tenant's Work), Landlord's underslab plumbing work, structural steel framework, decking and concrete on second, third and fourth (if applicable) floors, roof structure, roof membrane and installation of main fire sprinkler risers in a Building have been substantially completed in accordance with the Landlord's Approved Plans, Landlord shall prepare and deliver to Tenant a certificate signed by both Landlord and Architect (the "Structural Completion Certificate") certifying that the construction of such portions of the applicable Building has been substantially completed in accordance with the Landlord's Approved Plans in all material respects and specifying the date of that completion. The delivery of such Structural Completion Certificate shall commence the running of the 180-day time period (which period shall be extended day for day by any Landlord Delay, as hereinafter defined, occurring after the date of delivery of such Structural Completion Certificate) until the Rent Commencement Date for the applicable Building (or in the case of the Phase II Building, until the Phase IIA Rent Commencement Date) under Section 2.1 of the Lease. Notwithstanding any other provisions of this Workletter or of the Lease, Landlord's right to issue a Structural Completion Certificate with respect to the respective Phase I Buildings shall be determined without reference to the degree of completion of the Connector Bridge, and any delay in the construction or structural completion of the shell for the Connector Bridge shall not delay the determination of structural completion or the Rent Commencement Date for either of the Phase I Buildings, treating each of such Buildings (without the Connector Bridge) as a stand alone building and ignoring, for this purpose, any lack of completion of Landlord's Work at and in the immediate vicinity of the point of attachment of the Connector Bridge to the applicable Building.

(b) When Landlord receives written certification from Architect that construction of the remaining Improvements constituting Landlord's Work with respect to a Building has been substantially completed in accordance with the Landlord's Approved Plans (except for Punch List Work), Landlord shall prepare and deliver to Tenant a certificate signed by both Landlord and Architect (the "Final Completion Certificate") certifying that the construction of the remaining Improvements constituting Landlord's Work with respect to such Building has been substantially completed in accordance with the Landlord's Approved Plans in all material respects, subject only to completion of Punch List Work, and specifying the date of that completion. Upon receipt by Tenant of the Final Completion Certificate, the Improvements constituting Landlord's Work will be deemed delivered to Tenant for all purposes of the Lease (subject to Landlord's continuing obligations with respect to the Punch List Work). Notwithstanding any other provisions of this Workletter or of the Lease, Landlord's right to issue a Final Completion Certificate with respect to the respective Phase I Buildings shall be determined without reference to the degree of completion of the Connector Bridge, and any delay in the construction or final completion of the shell for the Connector Bridge shall not delay the determination of final completion or the Rent Commencement Date for either of the Phase I Buildings, treating each of such Buildings (without the Connector Bridge) as a stand-alone building and ignoring, for this purpose, any lack of completion of Landlord's Work at and in the immediate vicinity of the point of attachment of the Connector Bridge to the applicable Building.

(c) Notwithstanding any other provisions of this Workletter or of the Lease, Rent Commencement Dates for the applicable Buildings shall be subject to adjustment under the following circumstances:

(i) If Landlord is delayed in substantially completing any of Landlord's Work necessary for issuance of the Structural Completion Certificate with respect to a Building as a result of any Tenant Delay, then the 180-day period between the delivery of the Structural Completion Certificate and the Rent Commencement Date for such Building pursuant to Section 2.1 of the Lease shall be reduced, day for day, by the number of days by which such Tenant Delay delayed completion of the portions of Landlord's Work necessary for issuance of the Structural Completion Certificate for such Building, and Tenant shall reimburse Landlord in cash, within fifteen (15) days after written demand by Landlord (accompanied by reasonable documentation of the items claimed), for any increased construction-related costs and expenses incurred by Landlord as a result of the Tenant Delay (except to the extent otherwise expressly provided in Paragraph 2(e)(iii) of this Workletter).

(ii) If Tenant is delayed in substantially completing any of Tenant's Work necessary for Tenant's occupancy of and commencement of business in a Building as a result of any Landlord Delay, then the 180-day period between the delivery of the Structural Completion Certificate and the Rent Commencement Date for such Building pursuant to Section 2.1 of the Lease shall be extended, day for day, by the number of days by which such Landlord Delay delayed completion of the portions of Tenant's Work necessary for Tenant's occupancy of and commencement of business in such Building.

(iii) Rent Commencement Dates shall also be subject to adjustment under the circumstances and to the extent provided in Section 2.1 (c) of the Lease, if applicable.

(d) At any time within thirty (30) days after delivery of the Structural Completion Certificate or the Final Completion Certificate, as applicable, for a Building, Tenant shall be entitled to submit one or more lists to Landlord specifying Punch List Work to be performed on the applicable Improvements constituting Landlord's Work with respect to such Building, and upon receipt of such list(s), Landlord shall diligently complete such Punch List Work at Landlord's sole expense. Promptly after Landlord provides Tenant with the Final Completion Certificate for a Building, Landlord shall cause the recordation of a Notice of Completion (as defined in Section 3093 of the California Civil Code) with respect to Landlord's Work for such Building.

4. Payment of Costs.

(a) Landlord's Work. Except as otherwise expressly provided in this Workletter (including, but not limited to, the cost allocations set forth in Schedules C-1 and C-2 attached hereto) or by mutual written agreement of Landlord and Tenant, the cost of construction of Landlord's Work shall be borne by Landlord at its sole cost and expense, including any costs or cost increases incurred as a result of Unavoidable Delays, governmental requirements or unanticipated conditions; provided, however, that notwithstanding any other provisions of this

Paragraph 4(a), to the extent the Cost of Improvement relating to the construction of any item or component of Landlord's Work is increased as a result of any implemented Change Order Request or any Tenant Delay, or as a result of any other plan changes or compliance costs attributable to Tenant's particular use requirements or to the contemplated Tenant's Work, the amount of the increase in the Cost of Improvement with respect to such item or component, as well as the Cost of Improvement with respect to any matters listed on Schedule C-1 or C-2 as being installed by Landlord but as having the cost thereof borne by Tenant, shall be reimbursed by Tenant to Landlord in cash or, by mutual agreement of Landlord and Tenant, may be deducted from Landlord's maximum obligation under Paragraph 4(b) with respect to the cost of Tenant's Work.

(b) Tenant's Work. Except as otherwise expressly provided in this Workletter (including, but not limited to, the cost allocations set forth in Schedules C-1 and C-2 attached hereto) or by mutual written agreement of Landlord and Tenant, the cost of construction of Tenant's Work shall be borne by Tenant at its sole cost and expense, including any costs or cost increases incurred as a result of Unavoidable Delays, governmental requirements or unanticipated conditions. Notwithstanding the foregoing sentence, the Cost of Improvements with respect to the construction of the Tenant Improvements in each Building shall be borne by Landlord up to a maximum contribution by Landlord equal to [REDACTED] per square foot, in the case of each of the Phase I Buildings (including the connector Bridge), and [REDACTED] per square foot, in the case of each phase of the Phase II Building, times the square footage of the applicable Building, as and when constructed (measured in accordance with Sections 1.1(c) and 3.1(d) of the Lease), toward the Cost of Improvements for the Tenant Improvements in the respective Buildings (the "Tenant Improvement Allowance"), less any reduction in such sum pursuant to Paragraph 4(a) or any other applicable provision of this Workletter. Tenant shall be entitled to utilize the entire Tenant Improvement Allowance, for each respective Building or phase prior to being required to expend any of Tenant's own funds on an unreimbursed basis for Tenant Improvements in such Building or phase. In all other respects, the timing, conditions and other procedures for Landlord's disbursement of the Tenant Improvement Allowance for each Building or phase shall be as reasonably prescribed by Landlord, subject to approval by Tenant (which approval shall not be unreasonably withheld or delayed by Tenant); provided, however, that progress payments of the Tenant Improvement Allowance shall be made not less often than monthly, subject to Tenant's timely compliance with ail applicable conditions and procedures established pursuant to this sentence. To the extent the Cost of Improvement with respect to the Tenant Improvements for any Building or Phase exceeds the Tenant Improvement Allowance (as reduced, if applicable), whether as a result of implemented Change Order Requests, Tenant Delays and/or Unavoidable Delays or otherwise, the amount of such excess shall in all events be Tenant's sole responsibility and expense. The rental amounts set forth in Section 3.1 of the Lease are not subject to adjustment based on the Cost of Improvements of the Tenant Improvements, regardless of whether the final Cost of Improvements for the Tenant Improvements in any Building or Phase uses the entire Tenant Improvement Allowance or not. The foregoing Tenant Improvement Allowance assumes that each Phase I Building will be composed of a minimum of 65% laboratory space and a maximum of 35% office space, and that the Phase II Building will be composed of a minimum of 50% laboratory space and a maximum of 50% office space, and such Tenant Improvement Allowance shall be subject to reduction (and/or to disapproval by Landlord of Tenant's proposed plans and specifications for the Tenant Improvements in the applicable Building) if the proposed laboratory space in a Building is less than the minimum percentage specified in this sentence. The square footage attributable to the Connector Bridge shall be disregarded for purposes of applying the ratios set forth in the preceding sentence to the Phase I Buildings.

(c) Tenant Funding of Tenant Improvement Allowance. If Landlord fails to timely fulfill its obligation to fund any portion of the Tenant Improvement Allowance pursuant to Paragraph 4(b) above, Tenant shall be entitled to deliver written notice thereof (a "Payment Notice") to Landlord. If Landlord still fails to fulfill any such payment obligation within seventy-five (75) days after Landlord's receipt of the Payment Notice from Tenant and fails to deliver written notice to Tenant within such 75-day period explaining the reasons for which Landlord believes that the amounts described in Tenant's Payment Notice are not in fact due and payable by Landlord, then Tenant shall be entitled to fund the portion of the Tenant Improvement Allowance described in the Payment Notice and to offset the amount so funded, together with interest at the prime rate plus two percentage points (2%) from the date of funding until the date of offset, against Tenant's next obligations to pay Rent under the Lease.

5. Tenant's Work. Tenant shall construct and install in each Building or Phase the Tenant's Work, substantially in accordance with the Tenant's Approved Plans or, with respect to Tenant's Work not otherwise shown on the Tenant's Approved Plans, substantially in accordance with plans and specifications prepared by Tenant and approved in writing by Landlord (which approval shall not be unreasonably withheld or delayed). Tenant's Work shall be performed in accordance with, and shall in all respects be subject to, the terms and conditions of the Lease (to the extent not inconsistent with this Workletter), and shall also be subject to the following conditions:

(a) Contractor Requirements. The contractor engaged by Tenant for Tenant's Work, and any subcontractors, shall be duly licensed in California and shall be subject to Landlord's prior written approval, which approval shall not be unreasonably withheld or delayed. Tenant shall engage only union contractors for the construction of Tenant's Work and for the installation of Tenant's fixtures and equipment in the Buildings, and shall require all such contractors engaged by Tenant, and all of their subcontractors, to use only union labor on or in connection with such work, except to the extent Landlord determines, in its reasonable discretion, that the use of non-union labor would not create a material risk of labor disputes, picketing or work interruptions at the Property, in which event Landlord shall, to that extent, waive such union labor requirement.

(b) Costs and Expenses of Tenant's Work. Subject to Landlord's payment or reimbursement obligations under Paragraph 4(b) hereof with respect to the Tenant Improvement Allowance, Tenant shall promptly pay all costs and expenses arising out of the performance of Tenant's Work (including the costs of permits) and shall furnish Landlord with evidence of payment on request. Tenant shall provide Landlord with ten (10) days' prior written notice before commencing any Tenant's Work. On completion of Tenant's Work (assuming Landlord has complied with its payment or reimbursement obligations under Paragraph 4(b) hereof), Tenant shall deliver to Landlord a release and unconditional lien waiver executed by each contractor, subcontractor and materialman involved in the performance of Tenant's Work, if any lien is filed against the Property or against Tenant's leasehold interest, Tenant shall obtain, within ten (10) days after the filing, the release or discharge of that lien. If Tenant fails to do so, Landlord shall have the right (but not the obligation) to obtain the release or discharge of the lien and Tenant shall, within fifteen (15) days after written demand by Landlord (accompanied by reasonable documentation of the items claimed), reimburse Landlord for all costs, including (but not limited to) reasonable attorneys' fees, incurred by Landlord in obtaining the release or discharge of such lien, together with interest from the date of demand at the interest rate set forth in Section 3.2 of the Lease.

(c) Indemnification. Tenant shall indemnify, defend (with counsel satisfactory to Landlord) and hold Landlord and its agents and employees harmless from all suits, claims, actions, losses, costs and expenses (including, but not limited to, claims for workers' compensation, attorneys' fees and costs) based on personal injury or property damage or contract claims (including, but not limited to, claims for breach of warranty) arising from the performance of Tenant's Work, including (but not limited to) from any early access to the Property by Tenant and its contractors in preparation for Tenant's Work as contemplated in Section 2.2 of the Lease and in this Workletter, Tenant shall repair or replace (or, at Landlord's election, reimburse Landlord for the cost of repairing or replacing) any portion of the Improvements and/or any of Landlord's real or personal property or equipment that is damaged, lost or destroyed in the course of or in connection with the performance of Tenant's Work.

(d) Insurance. Tenant's contractors shall obtain and provide to Landlord certificates evidencing workers' compensation, public liability, and property damage insurance in amounts and forms and with companies reasonably satisfactory to Landlord.

(e) Rules and Regulations. Tenant and Tenant's contractors shall comply with any other reasonable rules, regulations and requirements that Landlord or Landlord's General Contractor or project manager may impose from time to time with respect to the performance of Tenant's Work. Tenant's agreement with Tenant's contractors shall require each contractor to provide daily cleanup of the construction area to the extent that such cleanup is necessitated by the performance of Tenant's Work.

(f) Early Entry. Landlord shall permit entry of contractors into the Buildings for the purposes of performing Tenant's Work, upon delivery of the Structural Completion Certificate and, to the extent provided in Section 2.2 of the Lease, prior to such delivery, subject to satisfaction of the conditions set forth in the Lease and in this Workletter. This license to enter is expressly conditioned on the contractor(s) retained by Tenant working in harmony with, and not interfering with, the workers, mechanics and contractors of Landlord. If at any time the entry or work by Tenant's contractor(s) causes any material interference with the workers, mechanics or contractors of Landlord, permission to enter may be withdrawn by Landlord immediately on written notice to Tenant. Landlord agrees to use reasonable efforts to cause its workers, mechanics and contractors to work in harmony with Tenant's contractors. Any unreasonable exclusion of Tenant's contractors from the Buildings shall be a Landlord Delay to the extent provided in the definition of that term.

(g) Risk of Loss. All materials, work, installations and decorations of any nature brought onto or installed in the Buildings, by or at the direction of Tenant or in connection with the performance of Tenant's Work, before the applicable Rent Commencement Date shall be at Tenant's risk, and neither Landlord nor any party acting on Landlord's behalf shall be responsible for any damage, loss or destruction thereof.

(h) Condition of Tenant's Work. All work performed by Tenant shall be performed in a good and workmanlike manner, shall be free from defects in design, materials and workmanship, and shall be completed in compliance with the plans approved by Landlord for such Tenant's Work in all material respects and in compliance with all applicable governmental laws, ordinances, codes and regulations in force at the time such work is completed. Without limiting the generality of the foregoing, Tenant shall be responsible for compliance of all Improvements designed and constructed by Tenant with the requirements of the Americans with Disabilities Act and all similar or related requirements pertaining to access by persons with disabilities.

6. [Omitted.]

7. No Agency. Nothing contained in this Workletter shall make or constitute Tenant as the agent of Landlord. .

8. Survival. Without limiting survival provisions which would otherwise be implied or construed under applicable law, the provisions of Paragraph 5(c) of this Workletter shall survive the termination of the Lease with respect to matters occurring prior to expiration of the Lease.

9. Miscellaneous. All references in this Workletter to a number of days shall be construed to refer to calendar days, unless otherwise specified herein. In all instances where Tenant's approval is required, if no written notice of disapproval is given within the applicable time period, at the end of that period Tenant shall be deemed to have given approval (unless the provision requiring Tenant's approval expressly states that non-response is deemed to be a disapproval or withdrawal of the pending action or request, in which event such express statement shall be controlling over the general statement set forth in this sentence) and the next succeeding time period shall commence. If any item requiring approval is disapproved by Tenant in a timely manner, the procedure for preparation of that item and approval shall be repeated.

10. Landlord Delay. As used in this Workletter and the Lease, "Landlord Delay" shall mean any of the following types of delay in the completion of construction of the Tenant Improvements necessary for Tenant's occupancy of and commencement of business in the respective Buildings or phases, but only to the extent of the actual delay reasonably attributable to the causes or circumstances described herein and directly or proximately caused by such causes or circumstances after the delivery of Landlord's Structural Completion Certificate for the applicable Building or phase:

(a) Any delay resulting from Landlord's failure to approve within the time frames required in the Estimated Construction Schedules attached as Exhibit D to the Lease (or, in the case of any requests for which no specific time frame is specified in such Estimated Construction Schedules, within the time frame reasonably specified in writing by Tenant or its construction manager in requesting such approval) any matters requiring approval by Landlord;

(b) Any delay resulting from any unreasonable or wrongful denial by Landlord or its agents or contractors to Tenant or its agents or contractors of access to the applicable Building or phase, or from any negligent or willful acts or omissions of Landlord or its agents or contractors that interfere materially and unreasonably (beyond reasonable and customary accommodations and coordination issues necessarily involved in the conduct of concurrent work in the applicable premises by Landlord and Tenant) with the actual construction of Tenant's Work; or

(c) Any delay resulting from changes by Landlord in Landlord's approved Final Working Drawings and/or Landlord's Approved Plans that are merely deemed desirable by Landlord without being required by any of the circumstances described in the next to last sentence of Paragraph 2(e)(i) of this Workletter.

11 Financial Information. In August 2002, upon written request by Tenant, Landlord agrees to provide to Tenant, for Tenant's review, copies of the most recently available financial statements for Landlord and for Landlord's manager and sole member, Slough Estates USA Inc. Tenant agrees that such financial statements shall be treated as confidential material, and shall not be disseminated to any person or entity (including, but not limited to, any prospective subtenants of Tenant's existing premises in South San Francisco) without Landlord's prior written consent, except that Tenant shall be entitled to provide such information, subject to reasonable precautions to protect the confidential nature thereof, to Tenant's officers, directors and professional advisors, solely to use in connection with Tenant's analysis and enforcement of its rights under the Lease and this Workletter.

IN WITNESS WHEREOF, the parties have executed this Workletter concurrently with and as of the date of the Lease.

"Landlord"	"Tenant"
SLOUGH BTC, LLC, a Delaware limited liability company	TULARIK INC., a Delaware corporation
By: Slough Estates USA Inc., a Delaware corporation, Its Manager	By: _____
Its: VP	Its: CEO
By: _____	By: _____
Its: VP	Its: EVP

Schedule C-1 to Workletter

BUILDING SHELL

The "**Building Shell**" as defined in the Workletter to which this **Schedule C-1** is attached shall consist of the following:

Building envelope and waterproofing (the Building "shell"), except as specifically indicated as being included in Tenant Improvements under **Schedule C-2**. including: reinforced grade beam foundation on prestressed concrete piles; ground floor to be reinforced concrete slab supported by concrete piles; second, third and fourth (where applicable) floors to have metal decking with concrete topping slab; roof stucture to be metal deck with concrete for mass dampening in areas to receive mechanical equipment and to include a mechanical penthouse; roof membrane to be built-up system, four-ply including mineral fiber cap sheet, with flashing and sealants; building structural framing to consist of steel beams, girders, columns with a non-bearing exterior curtain wall; seismic system utilizing steel braced frames; floor system designed with live load capacity of 100 psf; roof live load to be 20 psf with minimum of 50 psf (more if required) in all areas within the roofscreen and mechanical penthouse; floor to floor heights of 17 feet, all three (or four) floors.

All other structural work except that driven specifically by Tenant Improvements programming (e.g., interior masonry walls)

Main Building entrances plus 14' 6" rollup door

Building code required primary structure fireproofing, 1 hour deck at elevated floors

Building code required stairs

Pit and jack for elevator; framed openings at 2nd and 3rd floors (and 4th floors where applicable); pits/openings sized for 5' 8" x 8' 5" deep inside clear dimension if Tenant provides elevator selection information prior to design completion by Landlord.

Exterior hardscape and landscape, except as specifically included in Tenant Improvements under **Schedule C-2**

Polyethylene vapor barrier under slab on grade

Site underground water, fire, storm and sanitary service to 5' outside Building line; sanitary to include monitoring manhole if required by City (but not including any connection, capacity or service fees associated with or imposed in connection with the construction of such manhole)

Building storm and overflow drainage systems

Site underground conduits for "normal" electrical and communications, terminated within the Building, including at least two 4" Pac Bell conduits into Building.

Electrical utility pad and transformer, and primary and secondary service conduits terminated at building switchgear location for Tl-provided electrical service. Sizing for Building shall be a 3000A service, unless not approved by PG&E based on Tenant loads and demands.

Gas service to exterior meter at Building.

Wet fire protection (risers, loops, branches and heads), evenly distributed for "ordinary hazard-group 2" occupancy, including plug T's to accommodate three branch lines per bay, .20/3000 sf.

Shell design and permitting fees, except as specifically included in Tenant Improvements under **Schedule C-2**

Vented deck at 2nd and 3rd floors

Temporary project fencing

Construction lift for contractor access and stocking of materials (split with TI–50%)

Underslab plumbing and main trunk line for sanitary waste and lab waste (lab waste cost split 50/50 between shell and Tl)

Rigid roof insulation

Site directional signage program; a) "Tularik Main Lobby->"; b) "Tularik shipping/receiving->"; c) "Tularik Building A->'" d) "Tularik Building B->"; e) "Tularik Building->"; E S5.000 allowance by Landlord; balance chargeable to Tenant under TI

Schedule C-2 to Workletter

TENANT IMPROVEMENTS

The "**Tenant Improvement**" as defined in the Workletter to which this **Schedule C-2** is attached may include, but shall not necessarily be limited to, the following:

All tenant construction, design fees, fixtures, furnishings, etc. to support tenant operations, including use space, offices, lobbies, circulation, restrooms and all other features not indicated as part of the Building Shell in **Schedule C-1**

Service Yard foundations, structure, enclosure and waterproofing

Shipping/receiving/dock equipment and bollards.

Exterior Building skin modifications to support TI systems (e.g., louvers for HVAC accommodation)

Outdoor lounge and eating area

Topical emission barriers at slab on grade, if moisture test exceeds 3 lbs. Vapor barrier to be @ VCT, sheet vinyl and epoxy floor areas only (cost split 50/50 with Shell)

Slab depressions for special finishes or special uses

Enhancement of structure for live loading above 100 PSF or vibration control criteria

Modification of structure for openings at floors and roof

Modification or repair of structure fireproofing required by TI construction

All minor support structures far ducts, conduits, pipes, etc.

Stair enclosures

Stair penthouse, if required

Exterior wall insulation

Firesafing at floor decks, exterior wall and interior openings

Custom doors

Security or other upgrades to exterior doors

Wallboard capture trim at exterior window wall

Visual screens for rooftop equipment

Supports, sleepers, etc. for all rooftop equipment, ducts, plumbing, electrical, etc.

Roof patching for all penetrations relating to Tenant Improvements

Skylights, if used, including curbs, roof patching, etc.

Elevator cab and equipment, except for pit and jack

Shaft walls or other fire separations required for vertical openings (stairs, elevators) or control zones

Distribution/laterals from Building main trunk line for sanitary waste

All underground plumbing (distribution/laterals) and related systems and fixtures for lab waste. Cost of main trunk line for lab waste split 50-50 with shell.

Modifications/enhancements to wet fire protection systems required by TI design

Fire alarm and signal systems

All secondary electrical service for Tenant demand loads, including 3000A main service disconnect, Tenant meter section and distribution panels ‘

Standby electrical generator, if required

EXHIBIT E

ACKNOWLEDGMENT OF RENT COMMENCEMENT DATE

This Acknowledgment is executed as of _____, 200_____, by SLOUGH BTC, LLC, a Delaware limited liability company ("Landlord"), and TULARIK INC., a Delaware corporation ("Tenant"), pursuant to Section 2.4 of the Build-to-Suit Lease dated December_____, 2001 between Landlord and Tenant (the "Lease") covering premises located at _____Veterans Boulevard, South San Francisco, CA 94080 (the Phase____Building, hereinafter referred to as the "Building"). [In the case of the Phase II Building: This Acknowledgment covers Phase II____of Tenant's occupancy of the Building.]

Landlord and Tenant hereby acknowledge and agree as follows:

1. The Rent Commencement Date for [Phase II____of] the Building under the Lease is_____ , 200__.

2. The termination date under the Lease (if determinable at this time) shall be _____, 201__,subject to any applicable provisions of the Lease for extension or early termination thereof.

3. The square footage of the Building, as finally designed and built, measured in accordance with Sections 1.1 (c) and 3.1 (d) of the Lease, is_____square feet. [The square footage of Phase II____of the Phase II Building is_____square feet.]

4. Tenant accepts [Phase II_____of] the Building and acknowledges the satisfactory completion of all Improvements thereon required to be made by Landlord, subject only to any applicable "punch list" or similar procedures specifically provided under the Lease or under the Workletter governing such work.

EXECUTED as of the date first set forth above.

"Landlord"	"Tenant"
SLOUGH BTC, LLC, a Delaware limited liability company	TULARIK INC., a Delaware corporation
By: Slough Estates USA Inc., a Delaware corporation, Its Manager	By: _____ Its: _____
By: _____ Its: _____	By: _____ Its: _____

FIFTH AMENDMENT TO BUILD-TO-SUIT LEASE
AND SECOND AMENDMENT TO WORKLETTER

THIS FIFTH AMENDMENT TO BUILD-TO-SUIT LEASE AND SECOND AMENDMENT TO WORKLETTER ("Amendment") is dated as of June 19, 2006 (the "Phase II Lease Commencement Date") and is entered into by and between SLOUGH BTC, LLC, a Delaware limited liability company ("Landlord") and AMGEN INC., a Delaware corporation ('Tenant"), with reference to the following facts:

Recitals

A. Landlord and Tenant (as successor to Tularik Inc.) are parties to (1) a Build-to- Suit Lease dated as of December 20,2001, as amended by that certain First Amendment to Build-to-Suit Lease dated as of January 22, 2003, that certain Second Amendment to Build-to- Suit Lease dated as of March. 26, 2004, that certain Third Amendment to Build-to-Suit Lease dated as of August 12, 2004, and that certain Fourth Amendment to Build-to-Suit Lease and First Amendment to Workletter dated as of June 19, 2006 (collectively, as amended, the "Lease"), covering the [REDACTED] Buildings in Phase I of the Britannia Oyster Point research and development, Center in South San Francisco, California (the "Center") [REDACTED] (collectively, the "Phase 1 Buildings"), and (2) a Workletter dated as of December 20, 2001, as amended by that certain Fourth Amendment to Build-to-Suit Lease and First Amendment to Workletter dated as of June 19**,** 2006 (collectively, as amended, the "Workletter"), covering various aspects of the construction of the respective Building Shells for the Phase I Buildings and of the construction of Tenant Improvements in the respective Phase I Buildings. Tenant is already occupying Phase I Buildings A and B; Phase I Building E is under construction for projected occupancy by Tenant on or about January 1,2007; the shell of Phase I Building D has been constructed, and the interior improvements therein will be constructed by Tenant for projected occupancy on or after November 1, 2006.

B. Landlord is in the process of developing the site adjacent to the easterly side of Phase I of the Center as a second phase ("Phase II") consisting of three additional buildings and related site improvements. A site plan for Phase II is attached to this Amendment as Exhibit A and incorporated herein by this reference (the "Phase II Site Plan"). As used herein, the phrase "Phase II Buildings" refers to Building.A (a four-story steel frame building totaling approximately 115,000 square feet) and Building B (a four-story steel frame building totaling, approximately 122,000 square feet), to be constructed as part of Phase II in approximately the locations designated for them on the Site Plan. Landlord and Tenant wish to add the Phase II Buildings to the Buildings covered by the Lease and to add the Phase II site to the Property covered by the Lease, and in connection therewith to modify certain provisions of the Lease and Workletter and certain of the parties' respective rights and obligations thereunder, all subject to and as more particularly set forth in this Amendment. This Amendment modifies and amends both the Lease and Workletter, and shall be controlling over any inconsistent provisions of the Lease and Workletter, with respect to the matters, specifically addressed in this Amendment.

C. Capitalized terms used, in this Amendment as defined terms but not specifically defined in this Amendment shall have the meanings assigned to such terms in the Lease or in the Workletter, as applicable. Notwithstanding the foregoing, the parties note that the phrase "Phase II Building" and related phrases (such as "Phase II Rent Commencement Date") were used in the Lease as it existed prior to this Amendment to refer to Phase I Building E (1130 Veterans Blvd.) as described above, and that there is some risk of confusion in using the terms "Phase II," "Phase II Buildings" and similar terms under this Amendment in the manner described in Recital B above. Nevertheless, the parties believe that it is important, for clarity and consistency with the terminology Landlord has used generally in connection with its development of the expansion property described in Recital B above, to adopt the terminology and definitions set forth in Recital B above. Accordingly, the parties hereby confirm and agree, for purposes of clarification, that (1) in connection with the construction and occupancy of Phase I Building E (1130 Veterans Blvd.) as part of the Phase I Buildings as defined above, the Lease and all references therein to "the Phase II Building," the "Phase II Rent Commencement Date" and similar phrases shall be construed to continue to apply to such Building E in the same manner as they applied prior to adoption of this Amendment, without regard to the provisions of this Amendment, and (2) in connection with the construction and occupancy of Phase II Buildings A and B as the Phase II Buildings as defined above, references in this Amendment and in the Lease as amended hereby to "the Phase II Building(s)," the "Phase II Rent Commencement Date" and similar phrases shall be construed to apply to such Phase II Buildings A and B in accordance with the provisions of this Amendment.

Agreement

NOW, THEREFORE, in consideration of the mutual agreements contained in this Amendment and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant agree as follows:

I. Leasing of Phase II Buildings and Amendment of Lease. The two Phase II Buildings (as defined above) are hereby designated as additional Buildings under the Lease and the real property constituting Phase II of the Center, as depicted on the Phase II Site Plan, is hereby added to the Property as defined in the Lease, subject to all of the terms and conditions set forth in this Amendment, and Landlord leases the Phase II Buildings to Tenant and Tenant leases the Phase II Buildings from Landlord on the terms, covenants and conditions set forth in the Lease, as modified by this Amendment and subject to all of the terms and conditions set.forth in this Amendment. Effective upon mutual execution of this Amendment (the date of which mutual execution shall be inserted at the beginning of this Amendment as the Phase II Lease Commencement Date), the Lease shall be deemed to be, and is hereby, amended to reflect and incorporate all of the terms and conditions set forth in this Amendment. In the event of any inconsistency between provisions of the Lease and provisions of this Amendment, the provisions of this Amendment shall be controlling with respect to the matters specifically addressed in this Amendment.

(a) Except as otherwise expressly provided herein, Tenant's Minimum Rental and Operating Expense obligations with respect to the Phase II Buildings shall commence on the earlier to occur of (i) the date which is three hundred sixty (360) days after the date Landlord delivers to Tenant a Structural Completion Certificate for the Phase II Buildings pursuant to the

Workletter, subject to any adjustments in such time period to the extent authorized or required under the provisions of the Workletter, or (ii) the date Tenant takes occupancy of and commences operation of its business in any material portion of the Phase II Buildings (the ‘’Phase II Rent Commencement Date”); provided, however, that if Landlord delivers (or is deemed to deliver) the Structural Completion Certificates for the respective Phase II Buildings on different dates, or if Tenant commences operation of its business in the respective Phase II Buildings on different dates, then the Phase II Rent Commencement Date shall be determined separately for each of the respective Phase II Buildings pursuant to the provisions of clauses (i) and (ii) above, applied separately and independently with respect to each Phase II Building. Based on the milestone construction schedule and the draft detailed Master Schedule (6/1/06) collectively attached hereto as Exhibit B (the “Milestone Construction Schedule”), the parties presently estimate that the Phase II Rent Commencement Date will occur on or about November 1, 2008. The Termination Date for Tenant’s leasing of the Phase II Buildings shall be the day immediately preceding the fifteenth (15th) anniversary of the Phase II Rent Commencement Date (or, if there are different Rent Commencement Dates for the respective Phase II Buildings, the day immediately preceding the fifteenth (15lh) anniversary of the later of such Phase II Rent Commencement Dates to occur), unless sooner terminated or extended as hereinafter provided. Consistent with Recital C above, the provisions of Section 2.1(b) of the Lease (regarding phased occupancy of and phased rent commencement for the “Phase II Building” as defined in the original Lease) shall be construed to apply solely to Phase 1 Building E (1130 Veterans Blvd.) as described above, and shall be inapplicable to the Phase II Buildings as defined in this Amendment.

(b) The Milestone Construction Schedule is predicated on execution of this Amendment and release of project teams by Landlord on June 1, 2006. To the extent that such execution and release are delayed materially beyond June 1, 2006, the dates set forth in the Milestone Construction Schedule may be affected by such delay. In any event, the Milestone. Construction Schedule as attached hereto is merely preliminary and non-binding in nature. A draft of a detailed master construction schedule (similar to the schedules attached as Exhibit D to the original Lease) for the Phase II Buildings as of June 1, 2006, including milestone dates outlining specific Landlord and Tenant responsibilities, is attached hereto as the second page of the Milestone Construction Schedule. Following the Phase II Lease Commencement Date, Landlord and Tenant shall cooperate reasonably, diligently and in good faith to achieve mutual approval of such detailed construction schedule (which shall then be referred to as the ‘‘Approved Construction Schedule”), including any mutually agreeable modifications to such draft schedule. Thereafter, references in the Lease and Workletter (as amended hereby) to the Estimated Construction Schedule shall, with respect to the Phase II Buildings, be construed to refer to such Approved Construction Schedule. Notwithstanding anything to the contrary in Section 10.1 of the Lease, Tenant’s obligation under Section 10.1 for payment of all charges for services and utilities supplied to or consumed in or with respect to the respective Phase II Buildings, including any taxes on such services and utilities, shall commence on the date Landlord delivers the Structural Completion Certificate for the applicable Phase II Building to Tenant.

(c) Beginning on the Phase II Rent Commencement Date for the applicable Phase II Building and continuing through the Termination Date for the initial Term of the Lease with respect to the Phase II Buildings, Tenant's monthly Minimum Rental obligation for each Phase II Building pursuant to Section 3.1(a) of the Lease shall be equal to the applicable amount per square foot from the following table multiplied by the square footage of the applicable Phase II Building as determined pursuant to Section 3.1(d) of the Lease:

Months	Monthly Minimum Rental
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

[REDACTED]

(d) Notwithstanding any provisions of Section 3.1 (b), (c) and/or (e) of the Lease to the contrary:

(i) If Tenant properly exercises its right under Section 2.6 of the Lease to one or both extended terms with respect to the Phase II Buildings, the Minimum Rental for each Phase II Building during the first year of each applicable extended term shall be one hundred four percent (104%) of the Minimum Rental payable for such Phase II Building during the last full month of the lease year immediately preceding the commencement of the applicable extended term, and such Minimum Rental shall be further increased on each anniversary of the commencement of the applicable extended term to one hundred four percent (104%) of the Minimum Rental payable for such Phase II Building during the last full month of the immediately preceding lease year of the applicable extended term.

(ii) The entire Tenant Improvement Allowance for the Phase II Buildings as described in Section.2(c) of this Amendment has already been taken into account in establishing the Minimum Rental rates set forth above. Accordingly, the "additional rent" provisions set forth in Section 3.1(e) of the Lease are inapplicable to the Phase II Buildings and Tenant shall have no liability for any additional rent under Section 3.1 (e) of the Lease with respect to the Phase II Buildings.

(e) Landlord's intention is to calculate and allocate Operating Expenses for Phase II of the Center separately from and independently of the calculation and allocation of Operating Expenses for Phase I of the Center. Tenant's Operating Cost Share (as such term is used in the Lease) with respect to each Phase II Building shall be 100% for Operating Expenses which are allocable solely to such Phase II Building, and (subject to the assumption set forth in the preceding sentence) for Operating Expenses which are allocated on a Phase II-wide basis, shall for each Phase II Building be equal to the percentage share calculated by dividing the square footage of such Phase II Building (determined on the basis of measurement set forth in Section 1.1(c) of the Lease) by the aggregate square footage of all three (3) Buildings in Phase II of the Center (similarly and consistently determined on the basis of measurement set forth in Section 1.1(c) of the Lease). The foregoing shares do not include the Operating Cost Shares attributable to any of the Phase I Buildings, which shall continue to be calculated under the Lease in a manner consistent with prior practice, and Tenant's payment obligations arising from the Operating Cost Shares for the Phase II Buildings as described above shall simply be added to the payment obligations arising from the Operating Cost Shares for the Phase I Buildings in determining Tenant's total payment obligations for Operating Expenses under the Lease, All such Operating Cost Shares with respect to the Phase II Buildings shall remain subject to adjustment under the circumstances and to the extent set forth in the Lease, and shall be subject to the following additional provisions, notwithstanding anything to the contrary contained in the Lease or elsewhere in this Amendment:

(i) For purposes of calculating Tenant's Operating Cost Share of Operating Expenses which are allocated on a Phase II-wide basis, the aggregate square footage of all three (3) Buildings constructed or to be constructed in Phase II of the Center shall be included as if all three (3) such Buildings (including, but not limited to, Building C as designated on the Phase II Site Plan) were fully built-out at the time Tenant's obligation with respect to Operating Expenses for the Phase II Buildings commences.

(ii) Solely during the first two (2) years following the date on which Tenant's obligation for payment of Operating Expenses with respect to the Phase II Buildings commences, Tenant's Operating Cost Share for each Phase II Building shall be based solely on the square footage actually used or occupied by Tenant in that Phase II Building, so that Tenant's Operating Cost Share for Operating Expenses allocated solely to that Phase II Building shall be equal to the square footage actually used or occupied by Tenant in that Phase II Building divided by the total square footage of that Phase II Building, and Tenant's Operating Cost Share for Operating Expenses allocated on a Phase II-wide basis shall be equal to the square footage actually used or occupied by Tenant in that Phase II Building divided by the total square footage of all three (3) Buildings constructed or to be constructed in Phase II of the Center, as provided in subparagraph (i) above.

(f) To the extent (if any) that Landlord already holds a security deposit or deposits under the Lease with respect to the Phase I Buildings, such existing deposit(s), whether in the form of a cash deposit or a Letter of Credit, shall also be deemed to be useable by Landlord, under the provisions of the Lease, in connection with any defaults by Tenant relative to its leasing and occupancy of the Phase II Buildings pursuant to the Lease as amended hereby, but no additional or increased security deposit shall be required from Tenant with respect to the addition of the Phase II Buildings to the Buildings pursuant to this Amendment.

(g) Notwithstanding the provisions of Section 21.20(b) of the Lease, (i) Phase II of the Center is presently intended to contain approximately 2.8 parking spaces per 1,000 square feet of rentable area in the buildings to be constructed in Phase II of the Center, which ratio shall be used in allocating nonexclusive parking spaces to Tenant under Section 21.20 of the Lease with respect to the Phase II Buildings, and (ii) the monthly fee per parking space allocable to each Phase II Building shall be [REDACTED] per parking space for the first five (5) years after the Phase II Rent Commencement Date for such Building, [REDACTED] per parking space for years six (6) through ten (10) after the Phase II Rent Commencement Date for such Building, and [REDACTED] per parking space thereafter.

(h) Solely as applied to the Phase II Buildings, the first sentence of Section 11.1 of the Lease is amended to read as follows:

"Tenant shall make no alterations, additions or improvements to any Phase II Building without the prior written consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed, except that (i) subject to the final sentence of this Section 11.1 (regarding structural or roof alterations, substantial equipment installations on the roof, or alterations to building systems), Tenant shall not be required to obtain such consent for interior alterations costing less than One Hundred Thousand Dollars ($100,000.00) for any single project (i.e., any single item of alterations or set of related alterations in a Phase II Building), and (ii) regardless of whether Landlord's consent would otherwise be required under this Lease, Tenant shall provide Landlord with prior written notice of any proposed alterations, additions or improvements having a cumulative estimated cost of more than Four Hundred Thousand Dollars ($400,000.00) in any twelve (12) month period."

(i) Supplementing the provisions of Article 15 of the Lease with respect to assignment and subleasing, Landlord and Tenant agree that with respect to the Phase II Buildings, in the case of any assignment or subleasing other than a Permitted Transfer as defined in Section 15.1 of the Lease, the following provisions shall apply:

(i) Upon any assignment of Tenant's interest in the Lease for which Landlord's consent is required under Section 15.1 of the Lease, Tenant shall pay to Landlord, within ten (10) days after receipt thereof by Tenant from time to time, one-half (½) of all cash sums and other economic considerations received by Tenant in connection with or as a result of such assignment, after first deducting therefrom (i) any costs incurred by Tenant for leasehold improvements (including, but not limited to, third-party architectural and space planning costs) in the Premises in connection with such assignment, amortized over the remaining term of this Lease, and (ii) any reasonable real estate commissions and/or reasonable attorneys' fees actually incurred by Tenant in connection with such assignment.

(ii) Upon any sublease of all or any portion of a Phase II Building for which Landlord's consent is required under Section 15.1 of the Lease, Tenant shall pay to Landlord, within ten (10) days after receipt thereof by Tenant from time to time, one-half (½) of all cash sums and other economic considerations received by Tenant in connection with or as a result of such sublease, after first deducting therefrom (i) the minimum rental due under the Lease for the applicable Phase II Building for the corresponding period, prorated (on the basis of the average per-square-foot cost paid by Tenant for such Phase II Building for the applicable period under the Lease) to reflect the size of the subleased portion of such Phase II Building, (ii) any costs incurred by Tenant for leasehold improvements in the subleased portion of such Phase II Building (including, but not limited to, third-party architectural and space planning costs) for the specific benefit of the sublessee in connection with such sublease, amortized over the remaining term of the Lease, and (iii) any reasonable real estate commissions and/or reasonable attorneys' fees actually incurred by Tenant in connection with such sublease, amortized over the term of such sublease.

2. Construction Amendment of Workletter. The parties intend and agree that the construction of the Phase II Buildings and of the Tenant Improvements necessary for Tenant's occupancy and use thereof shall be governed by and performed in accordance with the provisions of the Workletter, subject to all of the terms and conditions set forth in this Amendment. Effective upon the Phase II Lease Commencement Date, the Workletter shall be deemed to be, and is hereby, amended to reflect and incorporate all of the terms and conditions set forth in this Amendment. In the event of any inconsistency between provisions of the Workletter and provisions of this Amendment, the provisions of this Amendment shall be controlling with respect to the matters specifically addressed in this Amendment. Without limiting the generality of the foregoing, **Schedule C-1** and **Schedule C-2** attached hereto shall supersede, with respect to the Phase II Buildings, the comparable schedules attached to the Workletter.

(a) The Building Shell for each Phase II Building shall be constructed by Landlord in accordance with (i) Article 5 of the Lease, (ii) the Workletter (as amended hereby), and (iii) the shell definition set forth in **Schedule C-1** attached hereto and incorporated herein by this reference. Landlord acknowledges that pursuant to the foregoing provisions, (i) Landlord and Landlord's Architect shall be responsible for code compliance (including, but not limited to, compliance with any applicable requirements of the Americans with Disabilities Act and any applicable similar or related requirements pertaining to access by persons with disabilities) with respect to the Building Shell and any other improvements designed by Landlord, and (ii) all Phase II Building improvements and site improvements constructed by Landlord in Phase II of the Center shall be constructed (A) free of hazardous substances (as defined in Section 13.6(a) of the Lease), asbestos, asbestos-containing materials and presumed asbestos-containing materials, and (B) in compliance in all material respects with all applicable federal and state laws and requirements relating to hazardous substances.

(b) The Tenant Improvements for each Phase II Building shall be constructed by Tenant (and/or by Landlord, if applicable) in accordance with (i) Article 5 of the Lease, (ii) the Workletter (as amended hereby), and (iii) the tenant improvements definition set forth in **Schedule C-2** attached hereto and incorporated herein by this reference, subject to any alternative arrangements mutually approved in writing by Landlord and Tenant from time to time. Tenant acknowledges that pursuant to the foregoing provisions, Tenant and Tenant's

Architect shall be responsible for code compliance (including, but not limited to, compliance with any applicable requirements of the Americans with Disabilities Act and any applicable similar or related requirements pertaining to access by persons with disabilities) with respect to any and all improvements designed by Tenant or Tenant's Architect. Without limiting the breadth of the approval rights otherwise reserved to Landlord under the Workletter, Landlord reserves the right, in reviewing Tenant's proposed drawings and specifications at any stage, to require specific modifications to the proposed Tenant Improvements, at no material additional cost to Tenant, in order to maintain or enhance flexibility with respect to other potential future uses of the Phase II Buildings. Tenant shall have the right to provide, install and maintain, at its sole cost and expense, a security system (including, without limitation, automatic door latches, card-key systems, cameras, etc.) in the Phase II Buildings, which security system shall be surrendered to Landlord upon expiration or termination of the Lease with respect to such Phase II Buildings and Tenant shall have no obligation to restore or remove such security system. Tenant shall provide Landlord and its property manager with copies of any card-keys or other required access devices in order to facilitate emergency entry by Landlord or its agents during the term of the Lease, subject to the provisions of Section 16.1 of the Lease.

(c) [REDACTED] Under no circumstances shall the Tenant Improvement Allowance or any portion thereof be used or useable for any moving or relocation expenses of Tenant, or for any Cost of Improvement (or any other cost or expense) associated with any moveable furniture, trade fixtures, personal property or any other item or element which, under the applicable provisions of the Lease, will not become Landlord's property and remain with the applicable Phase II Building upon expiration or termination of the Lease. The provisions in Paragraph 4(b) of the Workletter regarding relative proportions of laboratory space and office space in the Buildings shall be inapplicable to the Phase II Buildings, and without limiting the generality of the foregoing, Landlord specifically agrees that the relative proportions of office space (if any) and/or laboratory space (if any) in the respective Phase II Buildings shall have no adverse effect on the amount of the Tenant Improvement Allowance for the Phase II Buildings as described above.

(d) Unless and until revoked by Landlord by written notice delivered to Tenant, Landlord hereby (i) delegates to Project Management Advisors, Inc., or any other project manager designated by Landlord in its sole discretion from time to time by written notice to Tenant ("Project Manager"), the authority to exercise all approval rights and other rights and powers of Landlord under the Workletter with respect to the design and construction of the Building Shell and Tenant Improvements for the Phase II Buildings, and (ii) requests that Tenant work with Project Manager with respect to any logistical or other coordination matters arising in the course of construction of the respective Building Shells and Tenant Improvements, including

(but not limited to) reviewing and processing Tenant's requests for disbursement of the Tenant improvement Allowance, monitoring Tenant's and Landlord's compliance with their respective obligations under the Workletter and under the Lease (as amended hereby) with respect to the design and construction of the Building Shell and the Tenant Improvements, and addressing any coordination issues that may arise in the course of construction of the Building Shell and Tenant Improvements. Tenant acknowledges the foregoing delegation and request, and agrees to cooperate reasonably with Project Manager as Landlord's representative pursuant to such delegation and request. As between Landlord and Tenant, however, Landlord shall be bound by and be fully responsible for all acts and omissions of Project Manager and for the performance of all of Landlord's obligations under the Lease (as amended hereby) and the Workletter, notwithstanding such delegation of authority to Project Manager. Notwithstanding the preceding sentence, neither Landlord's delegation of authority to Project Manager nor Project Manager's performance of the functions and responsibilities contemplated in this paragraph shall cause Landlord or Project Manager to incur any obligations or responsibilities for the design, construction or delivery of the Tenant Improvements, except to the extent of the specific obligations and responsibilities of Landlord expressly set forth in the Lease (as amended hereby) and in the Workletter. [REDACTED]

(e) Notwithstanding anything to the contrary contained in Section 14.1(e) of the Lease or in the Workletter, the builder's risk insurance contemplated in such Section 14.1(e) for the Tenant Improvements constructed by Tenant in the Phase II Buildings pursuant to this Amendment and the Workletter shall be maintained by Tenant, at Tenant's sole expense, and shall otherwise comply with all applicable requirements under such Section 14.1(e).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

4. Brokers. Each party respectively (i) represents and warrants that no broker participated in the consummation of this Amendment or of the transactions contemplated herein, and (ii) agrees to indemnify, defend and hold the other party harmless against any liability, cost or expense, including (but not limited to) reasonable attorneys' fees, arising out of any claims for brokerage commissions or other similar compensation by any broker or agent alleging to have acted on behalf of the indemnifying party in connection with this Amendment and the transactions contemplated herein. The provisions of Section 21.15 of the Lease (Brokers) do not apply to this Amendment or the transactions contemplated herein.

5. Publicity. Neither party will make any press release or other media, promotional or advertising disclosure regarding this Amendment or the transactions contemplated hereby without the other party's express prior written consent, except as required under applicable law or by any governmental agency. Without limiting the generality of the foregoing, each party agrees that the other party will have no less than five (5) business days to review and provide comment regarding any such proposed press release or publicity regarding this Amendment or the transactions contemplated hereby, unless a shorter review time is agreed to by both parties. In the event that one party reasonably concludes that a given disclosure is required by law and the other party would prefer not to make such disclosure, then the party seeking such disclosure shall either (i) limit said disclosure to address the concerns of the other party, or (ii) provide a written opinion from counsel stating that such disclosure is indeed required by law. With respect to complying with the disclosure requirements of the SEC or other, securities regulatory bodies in other nations, in connection with any required securities filing of this Amendment the filing, party shall seek confidential treatment of this Amendment to the maximum extent permitted by such regulatory body and shall provide the other party with the opportunity, for at least fifteen (15) days, to review any such proposed filing. Each party agrees that it will obtain its own legal advice with regard to its compliance with securities laws and regulations, and will not rely on any statements made by the other party relating to such securities laws and regulations. Further, Landlord shall not use the name of Tenant, its affiliates or products or any signs, markings, or symbols from which a connection to Tenant, in Tenant's sole judgment, may be reasonably inferred or implied, in any manner whatsoever, including, without limitation, press releases, marketing materials, and advertisements, without Tenant's prior written approval. Tenant may withhold approval at Tenant's sole discretion. Nothing in this paragraph, however, is intended or shall be construed to prohibit, or to require Tenant's approval for, Landlord's inclusion of Tenant's name and of pertinent business terms of the Lease (as amended hereby) on any rent rolls, tenant lists or other similar documents that Landlord may submit from time to time to any lender or prospective lender, purchaser or prospective purchaser, or governmental or quasi-

governmental authority in connection with Landlord's ownership and operation of the Center, but only to the extent that Landlord determines in its sole discretion that such disclosure is reasonably necessary in order to advance Landlord's dealings with the applicable lender, purchaser and/or governmental or quasi-governmental authority, and then only to the extent that disclosure of comparable information is concurrently being made with respect to other tenants of the Center.

6. Entire Agreement. This Amendment constitutes the entire agreement between Landlord and Tenant regarding the subject matter hereof and supersedes all prior negotiations, discussions, terms sheets, letters, understandings and agreements, whether oral or written, between the parties with respect to such subject matter (other than the Lease itself, as expressly amended, hereby).

7. Execution and Delivery. This Amendment may be executed in one or more counterparts and by separate parties on separate counterparts, effective when each party has executed at least one such counterpart or separate counterpart, but each such counterpart shall constitute an original and all such counterparts together shall constitute one and the same instrument.

8. Full Force and Effect. Except as expressly set forth herein, the Lease has not been modified or amended and remains in full force and effect.

[rest of page intentionally left blank]

IN WITNESS WHEREOF, Landlord and Tenant have executed this Amendment as of the date first set forth above.

"Landlord"	"Tenant"
SLOUGH BTC, LLC, a Delaware limited liability company	AMGEN INC., a Delaware corporation
By: Slough Estates USA Inc., a Delaware corporation, Its Manager	By: /s/ Michael A. Kelly Name: Michael A. Kelly Title: VP Corporate Planning & Control, CA
By: /s/ Jonathan M. Bergschneider Name: Jonathan M. Bergschneider Title: Vice President	

Attachments:

Exhibit A	Phase II Site Plan
Exhibit B	Milestone Construction Schedule [including draft Master Schedule as of (6/1/06)]
Schedule C-1	Phase II Buildings Shell Description
Schedule C-2	Phase II Buildings Tenant Improvements Description

EXHIBIT A

PHASE II SITE PLAN

[See attached page.]

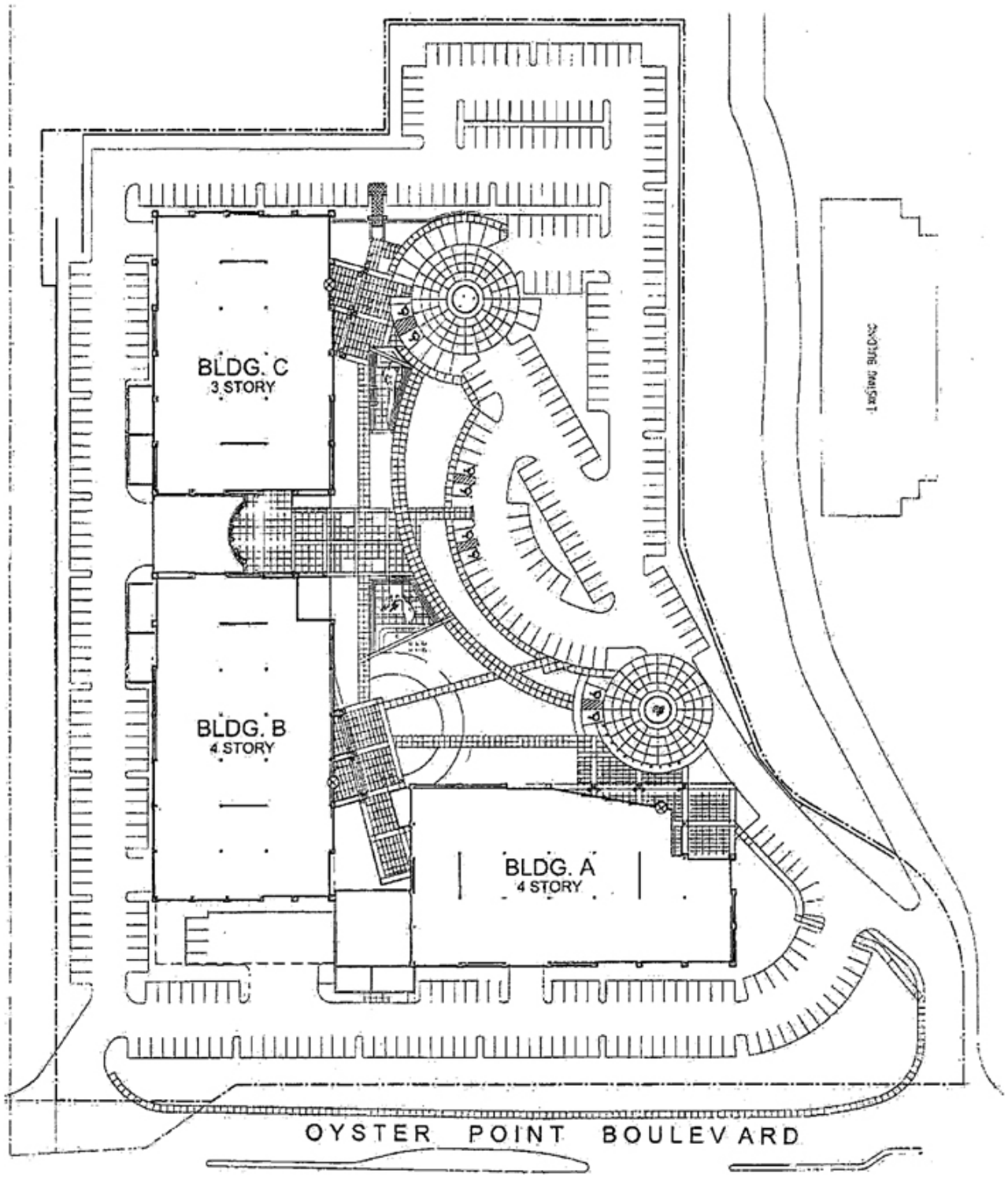

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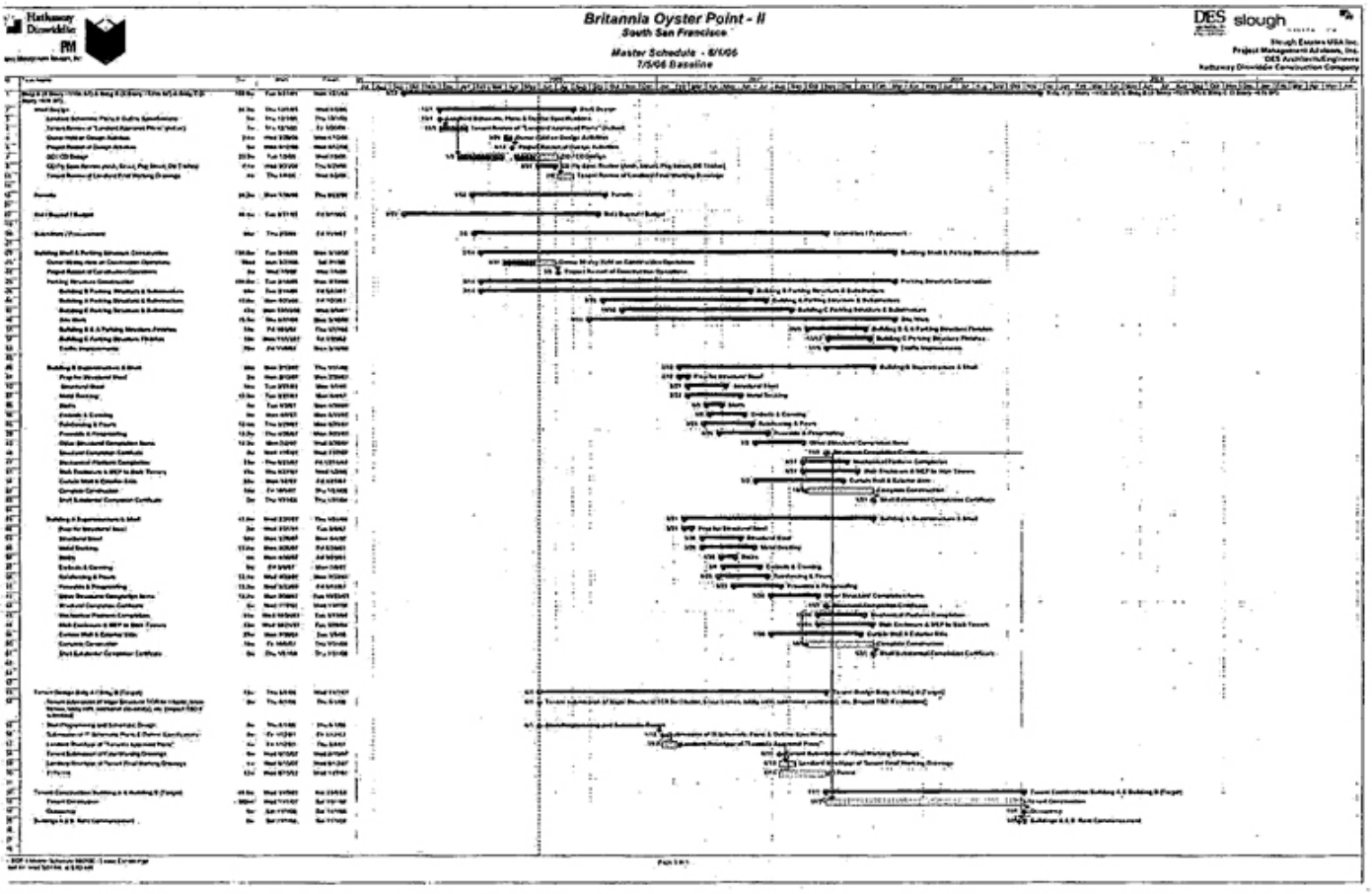
EXHIBIT B

MILESTONE CONSTRUCTION SCHEDULE

Milestone construction schedule for Britannia Oyster Point Phase II (333 Oyster Point Blvd.), Buildings A and. B, assuming a June 1,2006 release date, and subject to review and mutual approval of the detailed master construction schedule attached as the following page hereof (including any mutually agreed modifications thereto) as provided in the Lease, as amended:

Activity	Building A	Building B
Schematic Design	12/01/2005	12/01/2005
DD/Construction Documents Complete	07/05/2006	07/05/2006
Steel Mill Order	07/12/2006	07/12/2006
Skin Materials Order - Glass/Aluminum	09/21/2006	09/21/2006
Skin Materials Order - GFRC	09/07/2006	09/07/2006
Permit Application Review Completion	09/28/2006	09/28/2006
Begin Excavation	07/05/2006	07/05/2006
Begin Steel Erection	03/26/2007	02/27/2007
Shell. Structural Completion	11/07/2007	11/07/200.7
Shell Substantial Completion	01/31/2008	01/31/2008
Tenant Major Structural TCR (Importance Factor, brace frames and lobby infill, additional elevators, etc.)	ASAP	ASAP
TI Schematic Design Submission to Landlord	01/12/2007	01/12/2007
TI Final Working Drawing Submission to Landlord and for Permit	08/15/2007	08/15/2007
Start TI Construction	11/07/2007	11/07/2007
Tenant Occupancy/Rent Commencement	11/01/2008	11/01/2008



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Schedule C-1

PHASE II BUILDINGS SHELL DESCRIPTION

The "**Building Shell**" as used in the Amendment to which this **Schedule C-1** is attached and in the Workletter described therein shall consist of the following:

Building envelope and waterproofing (the Building "shell"), except as specifically indicated as being included in Tenant Improvements under **Schedule C-2**, including: two levels of below "street level" parking supported on reinforced concrete shallow foundations and constructed of steel and concrete structural elements; elevated, floors of metal decking with concrete fill; roof structure of metal deck with concrete fill; roof membrane to be a built-up system, with rigid insulation, flashing and sealants; building structural framing to consist of steel beams, girders, columns with a non-load-bearing exterior curtain wall; seismic system utilizing steel braced frames and concrete shear walls; roof live load to be 20 PSF with 75 PSF in all areas within the roofscreen (roofscreen loading is non-reducible); floor to floor heights within the Shell Buildings (superstructure) of 17 feet, all floors

All other structural work except that driven specifically by Tenant Improvements programming (e.g., interior masonry walls)

Floor designed for 100 PSF uniform live load capacity (reducible as allowed by code)

Main Building entrance(s)

Building code required primary structure fireproofing

Building code required stairs. Stair enclosures & handrails at lower level parking only
Pit and floor openings for one elevator

Exterior hardscape and landscape, except as specifically indicated as included in Tenant Improvements under **Schedule C-2**

Two-level steel and concrete parking structure beneath the Shell (superstructure) Buildings

Site underground water, fire, storm and sanitary service to 5 feet outside Building line

Building storm and overflow drainage systems

Site underground conduits for "normal" electrical and communications, terminated within the parking structure beneath each Shell Building

Electrical utility pad and transformer, primary service conduits terminated at Shell building switchgear location (within the parking structure beneath each Shell Building) for TI-provided electrical service

Gas service up to exterior meter location at each Building (but not including meter)

Wet fire protection (risers, loops, branches and heads), evenly distributed for "ordinary hazard, group 2" occupancy

Shipping/receiving dock and services room and foundation within garage envelope

Shell design and permitting fees, except as specifically included in Tenant Improvements under **Schedule C-2**

Vented deck at upper floors

Temporary project fencing

Construction lift for contractor safety, access, and stocking of materials (split with TI—50%)

Underslab sanitary waste main trunk line (split with TI—50%; branch distribution by TI)

Schedule C-2

PHASE II BUILDINGS TENANT IMPROVEMENTS DESCRIPTION

The "**Tenant Improvements**" as defined in the Amendment to which this **Schedule C-2** is attached and in the Workletter described therein shall include, but not necessarily be limited to, the following, to be constructed from Tenant Improvement Allowance funds or otherwise at Tenant's expense:

All tenant construction, design fees, fixtures, furnishings, etc. to support tenant operations, including use space, offices, lobbies, circulation, restrooms and all other features not specifically indicated as part of the Building Shell in **Schedule C-I**

Foundations, structure, enclosure and waterproofing for emergency generator and trash enclosure.

Any service area that is included in the area (square footage) calculation for the applicable Building, and upon which rent is therefore paid by Tenant, will not fall under this definition for purposes of this schedule. **[1]**

Exterior building skin modifications to support TI systems (e.g., louvers for HVAC accommodation) [2]

Outdoor lounge and eating area [2]

Topical emission barriers on slabs, if required

Slab depressions for special finishes or special uses [2]

Enhancement of structure for live loading above 100 PSF or vibration control criteria [2]

Modification of structure for openings at floors and roof [2]

Modification or repair of structure fireproofing required by TI construction

All minor support structures for ducts, conduits, pipes, etc.

Stair enclosures, vestibule doors, dedicated mechanical shafts & ducts for stair pressurization, handrails and guardrails (except at parking levels, per Schedule C-1) [1]

Mechanical equipment, controls & monitoring, ductwork and penetrations required to pressurize stairs in advance of occupancy. per South San Francisco code. [1]

Stair penthouse, if required [1]

Exterior wall insulation

Firesafing at floor decks, exterior walls and interior openings **[performed under Method 1 only if required during shell construction by City of SSF, otherwise performed by TI contractor)[1]**

Custom doors

Security or other upgrades to exterior doors

Wallboard capture trim at exterior window wall

Visual screens and supporting structures/platforms/sleepers, etc. for rooftop equipment, ducts, plumbing, electrical, etc. **[1]**

Roof patching for all penetrations relating to Tenant Improvements

Skylights, if used, including curbs, roof patching, etc.

Elevator cab and equipment, except for one pit and floor openings. Additional elevators by Tenant.

Shaft walls or other fire separations in buildings required for vertical openings (stairs, elevators) or control zones

Distribution/laterals from sanitary waste main trunk line (main trunk line splot with Shell 50%)

All lab waste plumbing and related systems and fixtures, if required

Gas meter and piping from gas meter to Building

Modifications/enhancements to wet;fire protection systems required by TI design

Fire alarm, signal and security systems (some of which may need to be installed as part of the Shell due to code requirements [Method 1 below], in which event they will be charged against the TI Allowance);

All secondary electrical service for Tenant demand loads, including main service disconnect, Tenant meter section and distribution panels

Standby electrical generator, if required

All electrical communications wire and service not specifically included in Building Shell

All TI design fees and reimbursables

All other “soft” costs, including TI permit/development fees, utility capacity or connection charges, etc.

Landlord-provided oversight of TI activities as specified in Amendment and Workletter

All testing and inspection of TI construction

Builders risk insurance for TI construction including earthquake coverage

All general contractor preconstruction services costs related to TI construction

Construction lift for contractor safety, access and stocking of materials (split with shell–50%)

“Tenant Improvements” shall not include the design and/or construction of infrastructure, landscaping or other site improvements unless specifically requested by Tenant or as a result of Tenant Improvements or Tenant’s requested modifications to existing plans

Elements shown in bold and underlined will be implemented in accordance with Page 3 of this Schedule C-2 and charged against the Tenant Improvement Allowance.

IMPLEMENTATION METHODS FOR WORK CONSTRUCTED BY LANDLORD ON BEHALF OF TENANT AT TENANT'S EXPENSE

Method No.	Programming and/or Preliminary Design Requirements	Architect/Engineer of Record	Contractor of Record/Contract Relationship	Coordination Responsibility	Examples
1	Landlord design included as part of shell documents and construction	Landlord design team	Landlord Contractor under main Shell contract or change order to main Shell contract	Landlord team	Service yard, loading dock area, roof screens,stair pressurizalion, etc.
2	Tenant provides program or design requirements and/or schematic design information:	Landlord design team takes info provided - by Tenant team and incorporates it into the shell documents	Landlord Contractor via change order to main Shell contract	Tenant team responsible for coordination of work with Landlord Contractor	TI required slab depressions

EXHIBIT B

PREMISES

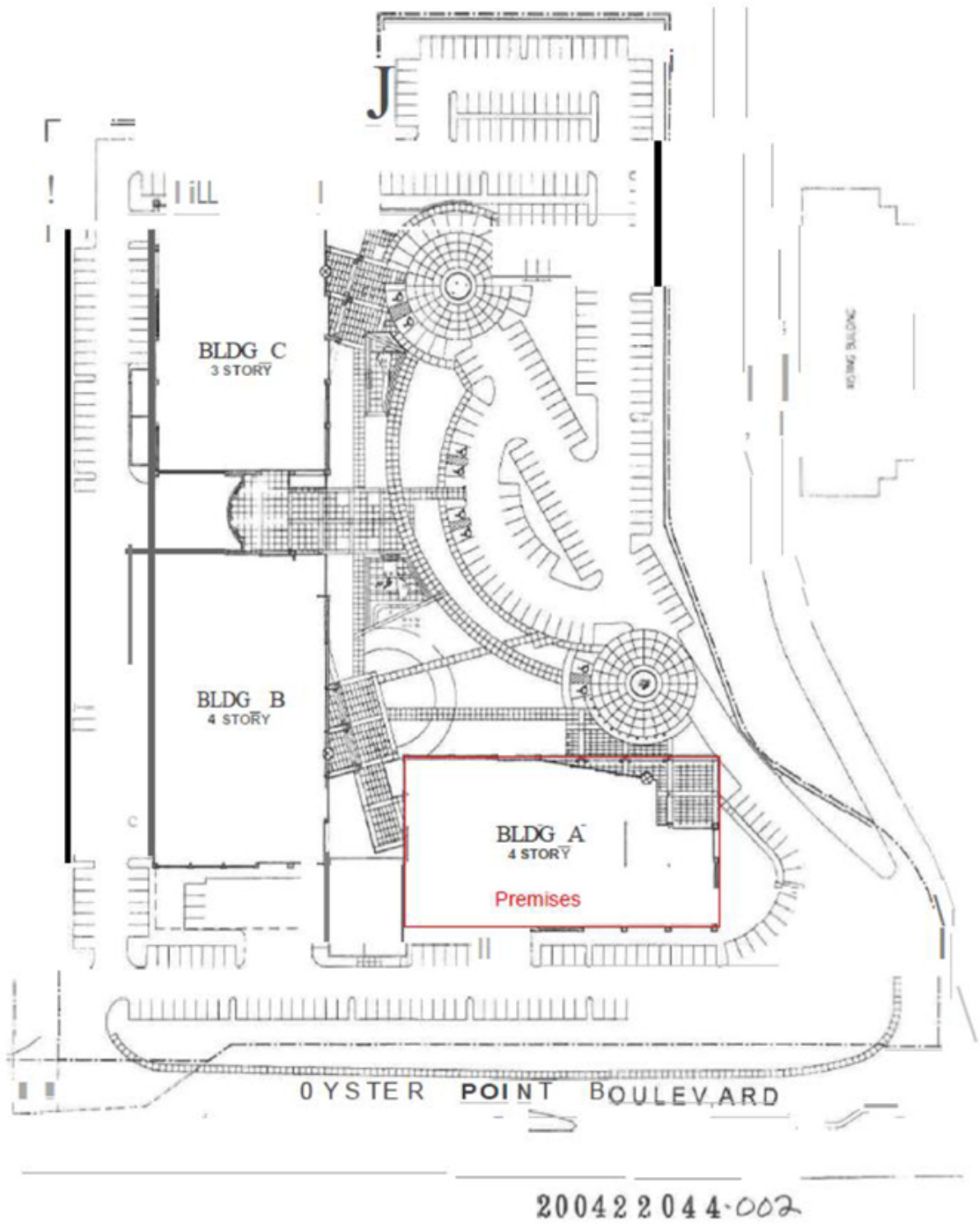

EXHIBIT C

WARM SHELL CONDITION

Britannia Oyster Point Sublease
Summary Scope of Warm Shell

Lobby

- ☐ Ground Floor Lobby approximately 500 s/f
- ☐ Ground Floor Fire Control Room

Stairways

- ☐ Smoke Control
- ☐ Pressure control
- ☐ Finished on the interior, inc: flooring and lighting

Elevators

- ☐ Service Elevators (1 per building) 5,000 lbs @ 350 fpm
- ☐ Passenger Elevators (2 per building) 3,500 lbs @350 fpm

Restrooms and Showers

- ☐ Central Restroom on each floor (inc janitor's closet)
- ☐ Shared Shower off Ground floor lobby

Mechanical/Electrical Design Criteria

- ☐ One tenant shall occupy each floor
- ☐ On each floor 35% laboratory, 30% laboratory support, 35% office space
- ☐ Utilities shall be sized for Chemistry laboratories on the ground floor and biology laboratories on the upper floors

HVAC Units

- ☐ Provided at a minimum of one unit per floor
- ☐ Conditioned air provided to Restrooms/Showers Lobbies and Electrical rooms
- ☐ Main ducts will be sized for present and future loads as defined in (i) that certain Basis of Design Amgen Buildings A&B, prepared by Engineering Southland Industries and dated November 21, 2008, and (ii) that certain Basis of Design (BOD) for Architectural, Mechanical, Piping and Electrical Systems, prepared by Affiliated Engineers, Inc. in association with Flad Architects, designated AEI Project No. 08406-00 and dated July 8, 2008 (items (i) and (ii) collectively, the "***Basis of Design***")
- ☐ Main ducts will terminate at each floor just outside of riser shaft

Exhaust Fans

- ☐ Provided at a minimum of one system per floor

Hot Water

- ☐ Two high efficiency heating hot water boilers and recirculation pumps and controls per building

- ☐ Heating hot water will serve preheat coils for HVAC units and reheat coils at variable air volume terminal units.
- ☐ Main pipes will be sized for present and future loads as defined in the Basis of Design.
- ☐ Main pipes will terminate at each floor just outside of riser shaft with isolation valve/cap.

Industrial Cold Water

- ☐ System will be sized to serve all future laboratory fixtures, lab sinks, cup sinks, and devices that require industrial water.
- ☐ Pipe risers will be terminated at each floor with isolation valves
- ☐ Gas fired heater will provide Hot water

Potable Hot and Cold Water

- ☐ Will be provided to all restrooms, showers, indicated above, and other fixtures and devices that may require potable water.
- ☐ Piping shall be sized for future needs
- ☐ Piping will be terminated at each floor with isolation valves
- ☐ Gas fired heater will provide Hot water

Building Automation System

- ☐ DDC System shall have 25% excess capacity to the BOD requirements, in addition have the ability to be expanded to cover future tenant's requirements

Natural Gas

- ☐ Provided to the necessary mechanical equipment

Sanitary Waste

- ☐ A sanitary waste and vent system shall be provided for potable waste producing fixtures and equipment, with all fixtures trapped and vented to atmosphere.

Laboratory Waste

- ☐ Four separate risers near the center quadrant of each floor will be provided routed to one common drain that exits the building with to a sampling port outside the building.

Electrical

- ☐ 4,000 amp, 480/277 volt Main Switch Board located on the G-1 level below each building
- ☐ Normal power distribution rooms will be located on each floor with 100 amp 480/277 volt lighting panels and 45KVA transformers along with 150 amp 120/208 volt convenience power panels.
- ☐ Emergency power distribution rooms will be located on each floor with 100 amp 480/277 volt lighting panels and 45KVA transformers along with 150 amp 120/208 volt convenience power panels
- ☐ Life Safety Power will be located on each floor with 50 amp 480/277 volt lighting panels and 50 amp 120/208 volt panels
- ☐ Motor Control Center for roof top equipment will be located on the roof

- ☐ Power metering will be provided on each floor to measure power consumption floor by floor.
- ☐ Each building will be provided with a 1,000 KW Generator with two, bypass isolation type, transfer switches. One for life safety functions while the other will serve tenant loads.

Life Safety System

- ☐ A new fire alarm system, with code compliant smoke control in each building, a control panel located on the ground floor within the new fire control room.

Telecommunications

- ☐ Two 4” raceways from the main telephone room in the parking structure near the center quadrant of each floor will be provided.

Not Included as part of the Warm Shell Condition:

- ☐ Purified Water
- ☐ Laboratory Vacuum
- ☐ Compressed Air
- ☐ Specialty Gases
- ☐ Nitrogen
- ☐ Fire Protection
- ☐ Modifications to Existing Cold Shell coverage .20/1500
- ☐ Storm Drain
- ☐ Hazardous Storage Rooms

EXHIBIT D

[INTENTIONALLY DELETED]

EXHIBIT E

FORM OF LETTER OF CREDIT

IRREVOCABLE STANDBY LETTER OF CREDIT NO. SVBSF _____

Dated: _____, 20____
Beneficiary:
AMGEN INC.
Attn: Corporate Real Estate
One Amgen Center Drive
Thousand Oaks, CA 91320-1799

Applicant:
NGM Biopharmaceuticals, Inc.
Attn: David J. Woodhouse
630 Gateway Blvd
South San Francisco, CA 94080

AMOUNT: US$2,249,126.88 (TWO MILLION TWO HUNDRED FORTY NINE THOUSAND ONE HUNDRED TWENTY SIX AND 88/100 U.S. DOLLARS)

EXPIRATION DATE: _____ [1 YR. FROM ISSUE DATE]

LOCATION: SANTA CLARA, CALIFORNIA

GENTLEMEN:

WE HEREBY ESTABLISH OUR IRREVOCABLE STANDBY LETTER OF CREDIT NO. SVBSF _____ IN YOUR FAVOR FOR THE ACCOUNT OF THE ABOVE-REFERENCED APPLICANT IN THE AGGREGATE AMOUNT OF EXACTLY TWO MILLION TWO HUNDRED FORTY NINE THOUSAND ONE HUNDRED TWENTY SIX AND 88/100 U.S. DOLLARS (US$2,249,126.88) AVAILABLE BY YOUR SIGHT DRAFTS DRAWN ON US IN THE FORM OF EXHIBIT "A" ATTACHED AND ACCOMPANIED BY THE FOLLOWING:

1. THE ORIGINAL LETTER OF CREDIT AND ALL AMENDMENTS, IF ANY.

2. BENEFICIARY'S DATED STATEMENT SIGNED BY AN AUTHORIZED SIGNATORY OF BENEFICIARY, STATING:

(I) "BENEFICIARY, AS SUBLANDLORD, IS NOW ENTITLED TO DRAW UPON THIS LETTER OF CREDIT PURSUANT TO THE TERMS OF THAT CERTAIN SUBLEASE DATED _____[INSERT LEASE DATE], FOR PREMISES LOCATED AT 333 OYSTER POINT BOULEVARD, SOUTH SAN FRANCISCO, CA 94080";

OR

(II) "THE BANK HAS NOTIFIED US THAT THIS LETTER OF CREDIT WILL NOT BE EXTENDED BEYOND THE CURRENT EXPIRATION DATE OF THIS LETTER OF CREDIT AND APPLICANT HAS NOT DELIVERED TO BENEFICIARY AT LEAST THIRTY (30) DAYS PRIOR TO THE CURRENT EXPIRATION DATE OF THIS LETTER OF CREDIT A REPLACEMENT LETTER OF CREDIT SATISFACTORY TO BENEFICIARY."

OR

(III) "SUBTENANT HAS FILED A VOLUNTARY PETITION UNDER THE FEDERAL. BANKRUPTCY CODE."

OR

(IV) "AN INVOLUNTARY PETITION HAS BEEN FILED AGAINST SUBTENANT UNDER THE FEDERAL BANKRUPTCY CODE."

THE SUBLEASE AGREEMENT MENTIONED ABOVE IS FOR IDENTIFICATION PURPOSES ONLY AND IT IS NOT INTENDED THAT SAID SUBLEASE AGREEMENT BE INCORPORATED HEREIN OR FORM PART OF THIS LETTER OF CREDIT.

PARTIAL AND MULTIPLE DRAWINGS ARE ALLOWED. THIS LETTER OF CREDIT MUST ACCOMPANY ANY DRAWINGS HEREUNDER FOR ENDORSEMENT OF THE DRAWING AMOUNT AND WILL BE RETURNED TO THE BENEFICIARY UNLESS IT IS FULLY UTILIZED.

THIS LETTER OF CREDIT SHALL BE AUTOMATICALLY EXTENDED FOR AN ADDITIONAL PERIOD OF ONE YEAR, WITHOUT AMENDMENT, FROM THE PRESENT OR EACH FUTURE EXPIRATION DATE UNLESS AT LEAST 30 DAYS PRIOR TO THE THEN CURRENT EXPIRATION DATE WE NOTIFY YOU BY REGISTERED MAIL OR OVERNIGHT COURIER SERVICE AT THE ABOVE ADDRESS (OR ANY OTHER ADDRESS INDICATED BY YOU, IN A WRITTEN NOTICE TO US THE RECEIPT OF WHICH WE HAVE ACKNOWLEDGED, AS THE ADDRESS TO WHICH WE SHOULD SEND SUCH NOTICE) THAT THIS LETTER OF CREDIT WILL NOT BE EXTENDED BEYOND THE CURRENT EXPIRATION DATE. IN NO EVENT SHALL THIS LETTER OF CREDIT BE AUTOMATICALLY EXTENDED BEYOND APRIL 29, 2024 WHICH SHALL BE THE FINAL EXPIRATION DATE OF THIS LETTER OF CREDIT.

THIS LETTER OF CREDIT IS TRANSFERABLE ONE OR MORE TIMES, BUT IN EACH INSTANCE ONLY IN ITS ENTIRETY AND ONLY UP TO THE THEN AVAILABLE AMOUNT, ASSUMING SUCH TRANSFER TO SUCH TRANSFEREE WOULD BE IN COMPLIANCE WITH THEN APPLICABLE LAW AND REGULATION, INCLUDING BUT NOT LIMITED TO THE REGULATIONS OF THE U. S. DEPARTMENT OF TREASURY AND U. S. DEPARTMENT OF COMMERCE. BENEFICIARY MAY, AT ANY TIME, AND WITHOUT FIRST OBTAINING APPLICANT'S CONSENT THERETO, TRANSFER ALL OF BENEFICIARY'S INTEREST IN THE LETTER OF CREDIT TO ANOTHER PARTY,

PERSON OR ENTITY. AT THE TIME OF TRANSFER, THE ORIGINAL LETTER OF CREDIT AND ORIGINAL AMENDMENT(S), IF ANY, MUST BE SURRENDERED TO US AT OUR ADDRESS INDICATED IN THIS LETTER OF CREDIT TOGETHER WITH OUR TRANSFER FORM ATTACHED HERETO AS EXHIBIT "B" DULY EXECUTED. OUR TRANSFER FEE OF ¼ OF 1% OF THE TRANSFER AMOUNT (MINIMUM US$250.00) SHALL BE CHARGED TO THE ACCOUNT OF THE APPLICANT. THE CORRECTNESS OF THE SIGNATURE AND TITLE OF THE PERSON SIGNING THE TRANSFER FORM MUST BE VERIFIED BY BENEFICIARY'S BANK. ANY TRANSFER OF THIS LETTER OF CREDIT MAY NOT CHANGE THE PLACE OF EXPIRATION OF THE LETTER OF CREDIT FROM OUR ABOVE-SPECIFIED OFFICE. EACH TRANSFER SHALL BE EVIDENCED BY OUR ENDORSEMENT ON THE REVERSE OF THE ORIGINAL LETTER OF CREDIT AND WE SHALL FORWARD THE ORIGINAL LETTER OF CREDIT TO THE TRANSFEREE.

DRAFT(S) AND DOCUMENTS MUST INDICATE THE NUMBER AND DATE OF THIS LETTER OF CREDIT.

WE HEREBY AGREE WITH YOU THAT DRAFTS DRAWN UNDER AND IN COMPLIANCE WITH THE TERMS OF THIS LETTER OF CREDIT WILL BE DULY HONORED UPON PRESENTATION TO US AT OUR OFFICE LOCATED AT: 3003 TASMAN DRIVE, SANTA CLARA, CA 95054 ATTENTION: STANDBY LETTER OF CREDIT NEGOTIATION SECTION, WITHOUT INQUIRY AS TO THE ACCURACY THEREOF AND REGARDLESS OF WHETHER APPLICANT DISPUTES THE CONTENT OF SUCH DOCUMENTS OR STATEMENTS OR BY FACSIMILE TRANSMISSION AT: (408) 969-6510 OR (408) 496-2418 AND SIMULTANEOUSLY UNDER TELEPHONE ADVICE TO: (408) 654-7176 OR (408) 654-7120, ATTENTION: STANDBY LETTER OF CREDIT NEGOTIATION SECTION WITH ORIGINALS TO FOLLOW BY OVERNIGHT COURIER SERVICE; PROVIDED, HOWEVER, THE BANK WILL DETERMINE HONOR OR DISHONOR ON THE BASIS OF PRESENTATION BY FACSIMILE ALONE, AND WILL NOT EXAMINE THE ORIGINALS.

IF ANY INSTRUCTIONS ACCOMPANYING A DRAWING UNDER THIS LETTER OF CREDIT REQUEST THAT PAYMENT IS TO BE MADE BY TRANSFER TO YOUR ACCOUNT WITH ANOTHER BANK, WE WILL ONLY EFFECT SUCH PAYMENT BY FED WIRE TO A U.S. REGULATED BANK, AND WE AND/OR SUCH OTHER BANK MAY RELY ON AN ACCOUNT NUMBER SPECIFIED IN SUCH INSTRUCTIONS EVEN IF THE NUMBER IDENTIFIES A PERSON OR ENTITY DIFFERENT FROM THE INTENDED PAYEE.

THIS LETTER OF CREDIT IS SUBJECT TO THE INTERNATIONAL STANDBY PRACTICES ISP98, INTERNATIONAL CHAMBER OF COMMERCE, PUBLICATION NO. 590 ("ISP98").

SILICON VALLEY BANK,

EXHIBIT "A"

SIGHT DRAFT/BILL OF EXCHANGE

DATE: _____ REF. NO. _____

AT SIGHT OF THIS BILL OF EXCHANGE
PAY TO THE ORDER OF _____
US$_____
U.S. DOLLARS
_____

"DRAWN UNDER **SILICON VALLEY BANK**, SANTA CLARA, CALIFORNIA, IRREVOCABLE STANDBY LETTER OF CREDIT NUMBER NO. **SVBSF** _____ DATED _____ , 20____"

TO: SILICON VALLEY BANK

_____
3003 TASMAN DRIVE
SANTA CLARA, CA 95054

(INSERT NAME OF BENEFICIARY)

_____
Authorized Signature

GUIDELINES TO PREPARE THE SIGHT DRAFT OR BILL OF EXCHANGE:

1. DATE INSERT ISSUANCE DATE OF DRAFT OR BILL OF EXCHANGE.
2. REF. NO. INSERT YOUR REFERENCE NUMBER IF ANY.
3. PAY TO THE ORDER OF: INSERT NAME OF BENEFICIARY
4. US$ INSERT AMOUNT OF DRAWING IN NUMERALS/FIGURES.
5. U.S. DOLLARS INSERT AMOUNT OF DRAWING IN WORDS.
6. LETTER OF CREDIT NUMBER INSERT THE LAST DIGITS OF OUR STANDBY L/C NUMBER THAT PERTAINS TO THE DRAWING.
7. DATED INSERT THE ISSUANCE DATE OF OUR STANDBY L/C.

NOTE: BENEFICIARY SHOULD ENDORSE THE BACK OF THE SIGHT DRAFT OR BILL OF EXCHANGE AS YOU WOULD A CHECK.

IF YOU NEED FURTHER ASSISTANCE IN COMPLETING THIS SIGHT DRAFT OR BILL OF EXCHANGE, PLEASE CALL OUR L/C PAYMENT SECTION AT (408) 654-7127 OR (408) 654-3035 OR (408) 654-7716 OR (408) 654-7128.

EXHIBIT "B"

DATE:

TO: SILICON VALLEY BANK
3003 TASMAN DRIVE
SANTA CLARA, CA 95054

ATTN: GLOBAL FINANCIAL SERVICES
STANDBY LETTERS OF CREDIT

RE: SILICON VALLEY BANK IRREVOCABLE STANDBY LETTER OF CREDIT NO. _____

GENTLEMEN:

FOR VALUE RECEIVED, THE UNDERSIGNED BENEFICIARY HEREBY IRREVOCABLY TRANSFERS TO:

_____
(NAME OF TRANSFEREE)

_____
(ADDRESS)

ALL RIGHTS OF THE UNDERSIGNED BENEFICIARY TO DRAW UNDER THE ABOVE LETTER OF CREDIT UP TO ITS AVAILABLE AMOUNT AS SHOWN ABOVE AS OF THE DATE OF THIS TRANSFER.

BY THIS TRANSFER, ALL RIGHTS OF THE UNDERSIGNED BENEFICIARY IN SUCH LETTER OF CREDIT ARE TRANSFERRED TO THE TRANSFEREE. TRANSFEREE SHALL HAVE THE SOLE RIGHTS AS BENEFICIARY THEREOF, INCLUDING SOLE RIGHTS RELATING TO ANY AMENDMENTS, WHETHER INCREASES OR EXTENSIONS OR OTHER AMENDMENTS, AND WHETHER NOW EXISTING OR HEREAFTER MADE. ALL AMENDMENTS ARE TO BE ADVISED DIRECT TO THE TRANSFEREE WITHOUT NECESSITY OF ANY CONSENT OF OR NOTICE TO THE UNDERSIGNED BENEFICIARY.

THE ORIGINAL OF SUCH LETTER OF CREDIT IS RETURNED HEREWITH, AND WE ASK YOU TO ENDORSE THE TRANSFER ON THE REVERSE THEREOF, AND FORWARD IT DIRECTLY TO THE TRANSFEREE WITH YOUR CUSTOMARY NOTICE OF TRANSFER.

SINCERELY,

_____
(BENEFICIARY'S NAME)

_____
(SIGNATURE OF BENEFICIARY)

_____
(PRINTED NAME AND TITLE)

SIGNATURE AUTHENTICATED

THE NAME(S) TITLE(S), AND SIGNATURE(S) CONFORM TO THAT/THOSE ON FILE WITH US FOR THE COMPANY AND THE SIGNATURE(S) IS/ARE AUTHORIZED TO EXECUTE THIS INSTRUMENT

_____
(NAME OF BANK)

_____
(ADDRESS OF BANK)

_____
(CITY, STATE, ZIP CODE)

_____
(AUTHORIZED SIGNATURE)

_____
(PRINTED NAME AND TITLE)

_____
(TELEPHONE NUMBER)

Exhibit 10.15

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

RESEARCH COLLABORATION, PRODUCT DEVELOPMENT AND LICENSE AGREEMENT

by and between

NGM BIOPHARMACEUTICALS, INC.

and

MERCK SHARP & DOHME CORP.

RESEARCH COLLABORATION, PRODUCT DEVELOPMENT AND LICENSE AGREEMENT

This Research Collaboration, Product Development and License Agreement (this "**Agreement**") is effective as of February 18, 2015 (the "**Execution Date**"), and is entered into by and between NGM BIOPHARMACEUTICALS, INC., a corporation organized and existing under the laws of Delaware ("**NGM**") and MERCK SHARP & DOHME CORP., a corporation organized and existing under the laws of Delaware ("**Merck**"). Each of Merck and NGM may be referred to herein individually as a "**Party**" and collectively as "**Parties**."

RECITALS:

WHEREAS, NGM is a drug discovery company with a unique research platform for the identification of drug targets and expertise in the discovery and development of transformational biologics;

WHEREAS, NGM currently has a research and development program with respect to its proprietary NP201 Compounds (as hereinafter defined) and controls certain intellectual property and technology in connection therewith;

WHEREAS, Merck and its Affiliates possess expertise in the research, development and commercialization of pharmaceutical products;

WHEREAS, the Parties wish to establish a broad research and development collaboration across NGM's present and future portfolio of unpartnered drug candidates, pursuant to which Merck will obtain a license to NP201 Compounds, as further researched by the Parties, and NGM will continue to pursue compelling and therapeutically-useful biology that is disease area agnostic, and further innovate in antibody and protein engineering to discover, develop and deliver especially inventive, novel therapies that can improve the lives of patients around the world and that have unambiguous, promotable advantages with respect to existing treatments through POC (defined below), and Merck will thereafter have the option to develop and commercialize such therapies.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants herein contained, the receipt and sufficiency of which are hereby acknowledged, Merck and NGM hereby agree as follows:

ARTICLE 1
DEFINITIONS

Unless specifically set forth to the contrary herein, the following terms, whether used in the singular or plural, shall have the respective meanings set forth below.

1.1 "**AAA**" shall have the meaning set forth in Section 16.7.1.

1.2 "**Acquiror**" shall have the meaning set forth in Section 14.3.

1.3 "**Act**" shall mean, as applicable, the United States Federal Food, Drug and Cosmetic Act, 21 U.S.C. §§ 301 et seq., and/or the Public Health Service Act, 42 U.S.C. §§ 262 et seq., as such may be amended from time to time.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.4 "**Activity Threshold**" shall mean, with respect to NP201 Compounds: (a) [*] of: (i) less than or equal to [*] for [*]; or (ii) less than or equal to [*] for [*], as determined in [*]; and (b) [*] that is greater than or equal to [*] using the [*].

1.5 "**Adjusted Net Sales**" or "**ANS**" shall have the meaning set forth in Schedule 1.5.

1.6 "**Advanced Amounts**" shall have the meaning set forth in Section 7.5.2.

1.7 "**Affiliate**" shall mean, with respect to any Person, any other Person that directly or indirectly controls, is controlled by or is under common control with such Person. A Person shall be deemed to control another Person if such Person possesses the power to direct or cause the direction of the management, business and policies of such Person, whether through the ownership of more than fifty percent (50%) of the voting securities of such Person, by contract or otherwise.

1.8 "**Agreement**" shall have the meaning given such term in the preamble to this document.

1.9 "**Agreement Payments**" shall have the meaning set forth in Section 9.11.1.

1.10 "**Alliance Manager**" shall have the meaning set forth in Section 2.14.

1.11 "**Allowable Expenses**" shall have the meaning set forth in Schedule 1.5.

1.12 "**Antitrust Approvals**" shall have the meaning set forth in Section 16.17.2.

1.13 "**Acquiror**" shall have the meaning set forth in Section 14.3.

1.14 "**Auditee**" shall have the meaning set forth in Section 9.9.1.

1.15 "**Auditing Party**" shall have the meaning set forth in Section 9.9.1.

1.16 "**Back-up Product/Compound**" shall have the meaning set forth in Section 9.5.1.

1.17 "**Bankrupt Party**" shall have the meaning set forth in Section 16.3.

1.18 "**Baseline Budget Overage**" shall have the meaning set forth in Section 7.5.3(a).

1.19 "**Baseline Projected Plans and Budgets**" shall have the meaning set forth in Section 7.5.3(a).

1.20 "**Business Day**" shall mean a day other than a Saturday, Sunday or a day that is a bank holiday in the US.

1.21 "**Calendar Quarter**" shall mean the respective periods of three (3) consecutive calendar months ending on March 31, June 30, September 30 and December 31; provided, however, that the first Calendar Quarter of the Term shall begin on the Effective Date and end on the last day of the then current Calendar Quarter and the last Calendar Quarter of the Term shall begin on the first day of such Calendar Quarter and end on the last day of the Term.

1.22 "**Calendar Year**" shall mean each successive period of twelve (12) months commencing on January 1 and ending on December 31; provided, however, that the first Calendar Year of the Term shall begin on the Effective Date and end on December 31 of the then current Calendar Year and the last Calendar Year of the Term shall begin on the first day of such Calendar Year and end on the last day of the Term.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.23 "**Change of Control**" shall mean, with respect to a Party, and in the case of NGM, any Affiliate of NGM that Controls any of the NGM IP or any NP201 IP or other assets required for the Collaboration (including Collaboration Technology): (1) the sale of all or substantially all of such Party's (or Affiliate's, as applicable) assets or business relating to this Agreement; or (2) (a) the acquisition, directly or indirectly, by a Person or "group" (whether in a single transaction or multiple transactions) of more than fifty percent (50%) of the voting power of such Party (or Affiliate, as applicable) or of beneficial ownership of (or the right to acquire such beneficial ownership) of more than fifty percent (50%) of the outstanding equity or convertible securities of such Party (or Affiliate, as applicable) (including by tender offer or exchange offer); (b) any merger, consolidation, share exchange, business combination, recapitalization, sale of a majority of assets (*i.e.*, having a fair market value (as determined by the Board of Directors of such Party (or Affiliate, as applicable) in good faith) in excess of fifty percent (50%) of the fair market value of all the assets of such Party (or Affiliate, as applicable) and its subsidiaries immediately prior to such sale) or similar corporate transaction involving, directly or indirectly, such Party (or Affiliate, as applicable) (whether or not including one or more wholly owned subsidiaries of such Party (or Affiliate, as applicable)), other than: (i) transactions involving solely such Party (or Affiliate, as applicable) and/or one or more Affiliates, on the one hand, and one or more of such Party's (or Affiliate's, as applicable) Affiliates, on the other hand, and/or (ii) transactions in which the stockholders of such Party (or Affiliate, as applicable) immediately prior to such transaction hold at least fifty percent (50%) of the voting power of the surviving company or ultimate parent company of the surviving company; or (c) as a result of a single or multiple transaction(s) by a Person or group the occupation of, or the power to vote, a majority of the seats (other than vacant seats) on the board of directors (or similar governing body of such Party (or Affiliate, as applicable)) by any directors or Persons who were not: (i) members of such body on the Execution Date of this Agreement; (ii) appointed by members of such body on the Execution Date of this Agreement or by members of such body so appointed; or (iii) nominated for election to such body by any Persons described in preceding clauses (i) or (ii). For purposes of this definition, the terms "group" and "beneficial ownership" shall have the meaning accorded in the US Securities Exchange Act of 1934 and the rules of the US SEC thereunder in effect as of the Execution Date hereof.

1.24 "**Clinical Study or Studies**" shall mean human studies designed to measure the safety, efficacy, tolerability and appropriate dosage of a Program Compound, Research Program Development Candidate, NP201 Development Candidate, Small Molecule Collaboration Compound, Product or Small Molecule Product, as the context requires, including Phase 1 Clinical Trials, any POC Trial, Phase 2 Clinical Trials, or Phase 3 Clinical Trials. "Clinical Studies" shall include: (a) any clinical studies that the JEDC or Joint NP201 Committee, as applicable, determines are necessary or useful to conduct in the Territory for Research Program Development Candidates or NP201 Development Candidates, or (b) any clinical studies that the JLDC determines are necessary or useful to conduct in the Territory for Program Compounds, Products or NGM Optioned Products to achieve or maintain Marketing Authorizations.

1.25 "**CMC**" shall mean chemistry, manufacturing and control.

1.26 "**Code**" shall have the meaning set forth in Section 16.3.

1.27 "**Co-Detailing**" shall mean, with respect to an NGM Optioned Product, the joint detailing of such Product by Merck and NGM through their respective sales forces to a prescriber target audience under the same trademark in the Co-Detailing Territory using a coordinated field sales force consisting of representatives of both Merck and NGM, all in accordance with Article 7 and the Co-Detailing Agreement.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.28 "**Co-Detailing Agreement**" shall have the meaning set forth in Section 7.8.4.

1.29 "**Co-Detailing Option**" shall have the meaning set forth in Section 7.8.2.

1.30 "**Co-Detailing Territory**" shall mean the US.

1.31 "**Collaboration**" shall mean the research or Development activities undertaken by the Parties pursuant to the NP201 Research Collaboration and/or the Research Program, as the context requires.

1.32 "**Collaboration Compound**" shall mean any antibody, peptide or other large molecule, or small molecule, that satisfies all the following criteria: (a) [*] (b) [*] and (c) [*]. For clarity, antagonists or inhibitors of NP319 or NP201 are included within the scope of Collaboration Compounds if they satisfy the criteria set forth in the preceding sentence and are not NP201 Compounds.

1.33 "**Collaboration Compound Patents**" shall have the meaning set forth in Section 12.4.1.

1.34 "**Collaboration Invention**" shall mean any discovery, improvement, process, method, composition of matter, article of manufacture or Know-How that is conceived, reduced to practice, and/or, with respect to Know-How, generated by or on behalf of either or both Parties or their respective Affiliates, subcontractors, licensees or sublicensees, as a result of activities undertaken as part of the Collaboration or as a result of research or Development activities undertaken under this Agreement during the Tail Period.

1.35 "**Collaboration Patent**" shall mean a Patent Right that: (i) is Controlled by either or both Parties or their respective Affiliates at any time during the Term; and (ii) claims or covers a Collaboration Invention.

1.36 "**Collaboration Target**" shall mean [*] during the Research Program Term; provided, however, Collaboration Targets shall in no case include [*]. Collaboration Targets existing as of the Effective Date are set forth on Schedule 1.36, which Schedule will be updated by NGM from time-to-time to reflect subsequently identified Collaboration Targets.

1.37 "**Collaboration Technology**" shall mean all Collaboration Inventions and Collaboration Patents.

1.38 "**Combination Product**" shall mean a pharmaceutical preparation in final form containing a Program Compound (or Small Molecule Collaboration Compound, as applicable) in combination with one or more additional active ingredients that: (i) are not Program Compounds (or Small Molecule Collaboration Compounds, as applicable); and (ii) are not proprietary to NGM; provided, however, that such additional active ingredients exclude fusion proteins and conjugate molecules of the Program Compound. For clarity, [*]. All references to Product and Small Molecule Product in this Agreement shall be deemed to include Combination Product, unless otherwise noted.

1.39 "**Commercialization**" or "**Commercialize**" shall mean any and all activities directed to the offering for sale and sale of a Product or Small Molecule Product, as applicable, both before and after Marketing Authorization has been obtained, including activities related to marketing, promoting, distributing, importing, exporting, selling and offering to sell Product or Small Molecule Product, as applicable. When used as a verb, "to **Commercialize**" and "**Commercializing**" means to engage in Commercialization and "**Commercialized**" has a corresponding meaning.

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1.40 "**Commercially Reasonable Efforts**" shall mean, with respect to the efforts to be expended by a Party with respect to any objective, the reasonable, diligent, good faith efforts to accomplish such objective in a timely manner as such Party would normally use to accomplish a similar objective under similar circumstances. [*] and it is anticipated that the level of effort will be different for different markets, and will change over time, reflecting changes in the status of the NP201 Compound, Collaboration Compound, Small Molecule Collaboration Compound, Product, Small Molecule Product, Optioned Compound, NGM Optioned Product, or Tail Compound, as applicable, and the market(s) involved.

1.41 "**Competing Pharma Change of Control**" shall mean a Change of Control of NGM (or any Affiliate of NGM that Controls any of the NGM IP or any NP201 IP or other assets required for the Collaboration (including Collaboration Technology)) in which a company or group of companies acting in concert, for whom collective worldwide sales of [*] in the Calendar Year that preceded the Change of Control were [*], is the Acquiror as part of such Change of Control.

1.42 "**Content**" shall have the meaning set forth in Section 10.7.2(b).

1.43 "**Control**", "**Controls**" or "**Controlled by**" shall mean with respect to any item of or right under any Patent Rights, Know-How or other intellectual property or technology, the possession (whether by ownership or license, other than pursuant to this Agreement) or ability of a Party or its Affiliate to grant access to, or a license or sublicense of, such items or rights as provided for herein without violating the terms of any agreement or other arrangement with any Third Party existing at the time such Party would be required hereunder to grant the other Party such access or license or sublicense.

1.44 "**Cost of Goods Sold**" shall have the meaning set forth in Schedule 1.5.

1.45 "**Data Package**" shall have the meaning set forth in Section 5.1.

1.46 "**Develop**" shall mean all non-clinical activities and clinical activities designed to obtain any Marketing Authorization of a Collaboration Compound, Product, Small Molecule Collaboration Compound or Small Molecule Product, as applicable, in accordance with this Agreement or to be used in the Commercialization of the Product or Small Molecule Product (except for Phase 4 Clinical Trials), including the toxicology studies, pharmacokinetic, pharmacodynamic and other non-clinical studies, statistical analysis and report writing, Clinical Study design, pre-Marketing Authorization medical affairs activities and operations, preparing and filing regulatory filings and all regulatory affairs related to the foregoing, as well as any and all activities pertaining to manufacturing and formulation development and lifecycle management, including new indications, new formulations and all other activities related to securing Marketing Authorization for such Collaboration Compound, Product, Small Molecule Collaboration Compound and/or Small Molecule Product. "**Developing**" and "**Development**" shall have correlative meanings.

1.47 "**Development Costs**" shall mean, with respect to an NGM Optioned Product, all costs [*], including:

[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.48 "**Development Costs Report**" shall have the meaning set forth in Section 7.5.4.

1.49 "**Direct Marketing Expenses**" shall have the meaning set forth in Schedule 1.5.

1.50 "**Distribution Expenses**" shall have the meaning set forth in Schedule 1.5.

1.51 "**Early Development**" shall mean, with respect to each Research Program Development Candidate or NP201 Development Candidate, as applicable, the Development of such Research Program Development Candidate or NP201 Development Candidate (including conducting pre-clinical studies, pre-POC CMC and other process development for such Research Program Development Candidate or NP201 Development Candidate) and any Clinical Studies of such Research Program Development Candidate or NP201 Development Candidate through and including the first POC Trial of such Research Program Development Candidate or NP201 Development Candidate. For clarity, "Early Development" will not include any Development activities undertaken following completion of the first POC Trial for the applicable Research Program Development Candidate or NP201 Development Candidate.

1.52 "**Effective Date**" shall mean the date that this Agreement becomes effective, as determined in accordance with Section 16.17.1(b).

1.53 "**EMA**" shall mean the European Medicines Agency or any successor thereto.

1.54 "**EU**" or "**European Union**" shall mean the European Union and its then-current member states. As of the Execution Date, such member states are: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

1.55 "**Excluded Compound**" shall mean any and all Retained Compounds and Partnered Compounds.

1.56 "**Excluded Claim**" shall have the meaning set forth in Section 16.7.6.

1.57 "**Excluded Target**" shall mean any and all Retained Targets and Partnered Targets.

1.58 "**Execution Date**" shall have the meaning given such term in the preamble to this Agreement.

1.59 "**Existing Collaboration Agreements**" shall mean: (i) the Collaboration Agreement dated as of June 14, 2013 by and between MedImmune Limited and NGM, as amended by that certain Amendment to Collaboration Agreement dated February 14, 2014; (ii) the Research Collaboration and License Agreement dated as of March 26, 2012 by and between Daiichi Sankyo Company Limited and NGM; and (iii) the Research, Development and Commercialization Agreement dated as of September 7, 2011 by and between Juvenile Diabetes Research Foundation International and NGM, as amended by that certain First Amendment to the Research, Development and Commercialization Agreement dated as of August 14, 2013; in each case, as any such agreement may subsequently be amended from time to time following the Effective Date by such parties, in accordance with, and subject to, Section 4.8.

1.60 "**External Costs**" shall have the meaning set forth in Section 4.2.3(a).

1.61 "**External Costs True Up Report**" shall have the meaning set forth in Section 4.2.3(d).

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1.62 "**Field**" shall mean any and all uses in humans and animals.

1.63 "**Filing**" of an NDA shall mean the acceptance by a Regulatory Authority of an NDA for filing.

1.64 "**Finance Working Group**" shall have the meaning set forth in Section 2.13.

1.65 "**First Commercial Sale**" shall mean, with respect to any Product or Small Molecule Product in any country, the first sale for end use or consumption of such Product or Small Molecule Product, as the case may be, in such country by Merck or its Affiliates or sublicensees, excluding, however, any sale or other distribution for use in a Clinical Study.

1.66 "**First Extension Period**" shall have the meaning set forth in Section 4.1.3.

1.67 "**FTE Rate**" shall mean a rate of [*] for one Full Time Equivalent. The FTE Rate will be adjusted for the second and each additional (if any) Calendar Year of the Full Research Program Term, beginning for the 2016 Calendar Year, based on the percentage change in the All Items Consumer Price Index ("CPI") for the San Francisco-Oakland-San Jose, California area from one Calendar Year to the next.

1.68 "**Full Research Program Term**" shall mean the Research Program Term plus the Tail Period, if any.

1.69 "**Full Time Equivalent**" or "**FTE**" shall mean [*] hours of work devoted to or in support of Collaboration or Development activities under this Agreement that is carried out by one or more qualified employees of NGM or Merck, as applicable. In no event shall a single individual account for more than one FTE in any Calendar Year.

1.70 "**FTE True Up Report**" shall have the meaning set forth in Section 4.2.3(d).

1.71 "**Generic Bioequivalent Product**" shall mean, with respect to a Product or Program Compound in a particular country, any pharmaceutical product or compound that: (i) contains the same active pharmaceutical ingredients as such Product or Program Compound; (ii) is bioequivalent, biosimilar or interchangeable to such Product or Program Compound, as applicable; and (iii) is sold in such country by a Person that is not a sublicensee of Merck or its Affiliates with respect to such Product or Program Compound, as applicable, and did not purchase such product or compound in a chain of distribution that included any of Merck, its Affiliates or sublicensees.

1.72 "**Generic Small Molecule Product**" shall mean, with respect to a Small Molecule Product or Small Molecule Collaboration Compound in a particular country, any pharmaceutical product or compound that: (i) contains the same active pharmaceutical ingredients as such Small Molecule Product or Small Molecule Collaboration Compound; (ii) is bioequivalent or interchangeable to such Small Molecule Product or Small Molecule Collaboration Compound, as applicable; and (iii) is sold in such country by a Person that is not a sublicensee of Merck or its Affiliates with respect to such Small Molecule Product or Small Molecule Collaboration Compound, as applicable, and did not purchase such product or compound in a chain of distribution that included any of Merck, its Affiliates or sublicensees.

1.73 "**Global Commercialization Plan**" shall mean, with respect to an NGM Optioned Product, a written plan that describes Merck's plans for anticipated launch date, the pre-launch, launch and subsequent promotion and commercialization of such Product in the Territory (including anticipated activities relating to messaging, branding, advertising, planning, marketing, sales force

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training and allocation, and high-level pricing strategies (subject to compliance with, and consideration of, Law)), any Phase 4 Clinical Trials and medical affairs strategies, and the anticipated associated budget for such activities. For clarity, and notwithstanding Section 7.6, each Global Commercialization Plan will be updated by Merck from time-to-time as determined reasonably necessary by Merck, but in no event more than once per Calendar Year.

1.74 "**GLP**" or "**Good Laboratory Practice**" shall mean the applicable then-current standards for laboratory activities for pharmaceuticals or biologicals, as set forth in the Act and any regulations or guidance documents promulgated thereunder, as amended from time to time, together, with respect to work performed in a country other than the United States, with any similar standards of good laboratory practice as are required by any Regulatory Authority in such country.

1.75 "**GMP**" or "**Good Manufacturing Practice**" shall mean the applicable then-current standards for conducting manufacturing activities for pharmaceutical products (or active pharmaceutical ingredients) as are required by any applicable Regulatory Authority in the Territory.

1.76 "**HSR Act**" shall mean the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules promulgated thereunder.

1.77 "**HSR Conditions**" shall mean the following conditions, collectively: (a) the waiting period under the HSR Act shall have expired or earlier been terminated; (b) no injunction (whether temporary, preliminary or permanent) prohibiting consummation of the transaction contemplated by this Agreement or any material portion hereof shall be in effect; (c) no judicial or administrative proceeding opposing consummation of all or any part of this Agreement shall be pending; and (d) no requirements or conditions shall have been imposed by the United States Department of Justice or Federal Trade Commission (as applicable) in connection with the filings by the Parties under the HSR Act, other than requirements or conditions that are satisfactory to the Party on whom such requirements or conditions are imposed.

1.78 "**HSR Filing**" shall mean filings with the United States Federal Trade Commission and the Antitrust Division of the United States Department of Justice of a Notification and Report Form for Certain Mergers and Acquisitions (as that term is defined in the HSR Act) with respect to the subject matter of this Agreement, together with all required documentary attachments thereto.

1.79 "**Human Materials**" shall have the meaning set forth in Section 8.3.

1.80 "**IND**" shall mean an Investigational New Drug application, Clinical Study Application, Clinical Trial Exemption or similar application or submission for approval to conduct human clinical investigations filed with or submitted to a Regulatory Authority in conformance with the requirements of such Regulatory Authority.

1.81 "**Indemnified Party**" shall have the meaning set forth in Section 15.3.

1.82 "**Indemnifying Party**" shall have the meaning set forth in Section 15.3.

1.83 "**Indication**" shall mean a separate and distinct disease or medical condition in humans for which a Product, Program Compound, Small Molecule Product or Small Molecule Collaboration Compound that is in Clinical Studies, or for which an IND has been filed, is intended to treat, prevent and/or diagnose, and/or for which a Product, Program Compound, Small Molecule Product or Small Molecule Collaboration Compound, as applicable, has received Marketing Authorization. For purposes of this Agreement, each of T1D, T2D and obesity shall be considered separate disease/medical conditions and thus form separate Indications for a particular Product, Program Compound, Small Molecule Product or Small Molecule Collaboration Compound, as applicable.

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1.84 **"Indirect Marketing Expenses"** shall have the meaning set forth in Schedule 1.5.

1.85 "**Initial Research Program Term**" shall have the meaning set forth in Section 4.1.2.

1.86 "**Information**" shall mean any and all information and data, including all scientific, pre-clinical, clinical, regulatory, manufacturing, marketing, financial and commercial information or data, whether communicated in writing or orally or by any other method, which is provided by one Party to the other Party in connection with this Agreement.

1.87 "**IP Working Group**" shall have the meaning set forth in Section 2.13.

1.88 "**Joint Commercialization Committee**" or "**JCC**" shall have the meaning set forth in Section 2.10.1.

1.89 "**Joint Collaboration Patents**" shall have the meaning set forth in Section 12.2.3.

1.90 "**Joint Early Development Committee**" or "**JEDC**" shall have the meaning set forth in Section 2.6

1.91 "**Joint Later Development Committee**" or "**JLDC**" shall have the meaning set forth in Section 2.7.

1.92 "**Joint NP201 Committee**" shall have the meaning set forth in Section 2.4.1.

1.93 "**Joint Research Committee**" or "**JRC**" shall have the meaning set forth in Section 2.5.1.

1.94 "**Know-How**" shall mean any and all proprietary and confidential data, information, trade secrets and materials (whether patentable or not) including: (a) discoveries, improvements or technology; (b) tests, assays, techniques, data (including non-clinical and clinical data), methods, procedures, formulas or processes; (c) technical and non-technical data and other information relating to any of the foregoing; and (d) drawings, plans, designs, diagrams, sketches, specifications or other documents containing or relating to such information or materials.

1.95 "**Law**" shall mean, to the extent applicable: (i) any United States federal, state or local or multinational law, statute, standard, ordinance, code, rule, regulation, resolution or promulgation (including the Act); (ii) any federal, state or local or multinational law, statute, standard, ordinance, code, rule, regulation, resolution or promulgation in any country in the Territory outside the United States; (iii) any order, writ, judgment, injunction, decree, stipulation, ruling, determination or award entered by or with any Governmental Authority in the Territory, or (iv) any license, franchise, permit or similar right granted under any of the foregoing, or any similar provision having the force or effect of law.

1.96 "**License Fees**" shall have the meaning set forth in Schedule 1.5.

1.97 "**Licensed Infringement**" shall have the meaning set forth in Section 12.4.1.

1.98 [*] shall have the meaning set forth in Section [*]

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1.99 "**Marketing Authorization**" shall mean all approvals from the relevant Regulatory Authority necessary to market and sell a Product, Program Compound, NGM Optioned Product, Small Molecule Product or Small Molecule Collaboration Compound, as applicable, in any country (including all applicable governmental pricing and reimbursement approvals even if not legally required to sell Product, Program Compound, NGM Optioned Product, Small Molecule Product or Small Molecule Collaboration Compound, as applicable, in a country).

1.100 "**Merck**" shall have the meaning given such term in the preamble to this Agreement.

1.101 "**Merck Collaboration Prosecuted Patents**" shall have the meaning set forth in Section 12.2.2.

1.102 "**Merck Indemnified Parties**" shall have the meaning set forth in Section 15.2.

1.103 "**Merck IP**" shall mean the Merck Patent Rights and Merck Know-How.

1.104 "**Merck Know-How**" shall mean any and all Know-How, patentable or otherwise, that: (i) is Controlled by Merck or its Affiliates (subject to Section 14.3) as of the Execution Date or during the Full Research Program Term; (ii) is not generally known; and (iii) is contributed by Merck for use in the Collaboration or is required for NGM to perform its obligations in connection with the NP201 Research Collaboration.

1.105 "**Merck Option**" shall have the meaning set forth in Section 5.2.1.

1.106 "**Merck Patent Rights**" shall mean Patent Rights that: (i) are Controlled by Merck or its Affiliates (subject to Section 14.3) as of the Execution Date or during the Full Research Program Term; and (ii) claim Merck Know-How.

1.107 "**Merck Product Patents**" shall mean Patent Rights that: (i) are Controlled by Merck or its Affiliates (subject to Section 14.3); (ii) claim or cover the composition of matter or method of manufacture or use of a Program Compound, Product, Small Molecule Collaboration Compound or Small Molecule Product; and (iii) are filed as of or after the Execution Date.

1.108 **"Merck Proprietary Compound**" shall have the meaning set forth in Section 1.201.

1.109 [*] shall mean [*].

1.110 "**Milestone Product**" shall have the meaning set forth in Section 9.5.1.

1.111 "**Modulates**" shall mean interacts directly with a target and activates, agonizes, antagonizes or inhibits such target, alone or together with its signaling partners or co-factors.

1.112 "**Modulation Category**" shall mean one of the following forms of interaction between a particular Collaboration Compound and its applicable Collaboration Target: (a) such Collaboration Compound activates or agonizes such Collaboration Target when tested in an *in vitro* activity assay expressing such Collaboration Target (alone or together with its co-receptors, if any), *unless* such Collaboration Compound, when tested in an applicable animal model, causes a physiologic outcome that is characteristic, in such animal model, of molecules that antagonize or inhibit such Collaboration Target, in which case such Collaboration Compound shall be deemed to be included in clause (b) below; or (b) such Collaboration Compound antagonizes or inhibits such Collaboration Target when tested in an *in vitro* activity assay expressing such Collaboration Target (alone or together with its co-receptors, if any) *unless* such Collaboration Compound, when tested in an applicable animal model, causes a physiologic outcome that is characteristic, in such animal model, of molecules that activate or agonize such Collaboration Target, in which case such Collaboration Compound shall be deemed to be included in clause (a) above.

1.113 "**NDA**" shall mean a New Drug Application, Biologics License Application, Worldwide Marketing Application, Marketing Authorization Application, filing pursuant to Section 510(k) of the Act or similar application or submission for Marketing Authorization of a Product, Program Compound, Small Molecule Product, or Small Molecule Collaboration Compound filed with a Regulatory Authority to obtain marketing approval for a biological, pharmaceutical or diagnostic product in that country or in that group of countries.

1.114 "**Net Sales**" shall mean, subject to Section 9.6.1(f), the gross invoice price (not including value added taxes, sales taxes or similar taxes) of Product, Program Compound (pursuant to Section 9.6.1(f)), NGM Optioned Product, Small Molecule Product, or Small Molecule Collaboration Compound (pursuant to Section 9.6.1(f)), as applicable, sold by Merck or its Related Parties to the first Third Party after deducting, if not previously deducted, from the amount invoiced or received:

[*]

With respect to sales of Combination Products, Net Sales for any such Combination Product in a particular country in the applicable Calendar Quarter shall be calculated as follows:

(1) Where all active ingredients in such Combination Product are sold separately in such country, Net Sales shall be calculated by multiplying actual Net Sales of such Combination Product in such country as determined above by the fraction A/(A+B), where A is the net invoice price of the Product, NGM Optioned Product or Small Molecule Product, as applicable, as sold separately in such country, and B is the sum of the net invoice prices of the other active ingredients in such Combination Product (the "**Other Actives**").

(2) If the Product, NGM Optioned Product or Small Molecule Product, as applicable, component of the Combination Product is sold separately in such country, but none of the Other Actives is sold separately in such country, Net Sales for the purpose of determining royalties due hereunder for the Combination Product will be calculated by [*].

(3) If the Product, NGM Optioned Product or Small Molecule Product, as applicable, component of the Combination Product is not sold separately in such country, but the Other Active(s) are sold separately in such country, Net Sales for the purpose of determining royalties due hereunder for the Combination Product will be calculated by [*].

(4) If neither the Product, NGM Optioned Product or Small Molecule Product, component nor the Other Actives are sold separately in such country, Net Sales for the purposes of determining royalties due hereunder for the Combination Product will be [*].

In applying the foregoing formulas for purposes of calculating the Net Sales of a Combination Product, Merck shall act in good faith and make determinations in accordance with Merck's standard methods, consistently applied. [*].

1.115 "**NGM**" shall have the meaning given such term in the preamble to this Agreement.

1.116 "**NGM Adjusted Net Sales Allocation**" or "**NGM ANS Allocation**" shall have the meaning set forth in Section 7.5.1.

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1.117 "**NGM Adjusted Net Sales Share Option**" or "**NGM ANS Option**" shall have the meaning set forth in Section 7.5.1.

1.118 "**NGM ANS Option Cap**" shall have the meaning set forth in Section 7.5.6.

1.119 "**NGM Indemnified Parties**" shall have the meaning set forth in Section 15.1.

1.120 "**NGM IP**" shall mean the NGM Know-How and NGM Patents.

1.121 "**NGM Know-How**" shall mean any and all Know-How, patentable or otherwise, including animal models, manufacturing technology and *in vivo* and *in vitro* screening assays and methods for optimization and characterization of compounds that is: (i) Controlled by NGM or any of its Affiliates (subject to Section 14.3) as of the Execution Date or during the Term; and (ii) (a) to the extent Controlled during the Full Research Program Term, is reasonably necessary or useful, or (b) to the extent only Controlled after the expiration of the Full Research Program Term, is reasonably necessary, in each case of (ii) (a) and (b), for the research, Development, manufacture, use or Commercialization of Optioned Compounds, Optioned Products, Small Molecule Collaboration Compounds or Small Molecule Products; provided, however, that "NGM Know-How" shall not include any of NGM's proprietary gene or peptide delivery technologies that are used solely for research purposes, including discovery of antibodies, peptides or other large molecule or small molecule compounds. For the purpose of clarity, "NGM Know-How" pertains to Optioned Compounds, Optioned Products, Small Molecule Collaboration Compounds and/or Small Molecule Products, as opposed to "NP201 Know-How" which pertains to NP201 Compounds, NP201 Products and NP201 Targets. There may be overlap between "NP201 Know-How" and "NGM Know-How" to the extent Know-How satisfies both definitions.

1.122 "**NGM Optioned Compound**" shall mean an Optioned Compound or NP201 Compound as to which NGM has exercised the NGM ANS Option.

1.123 "**NGM Optioned Product**" shall mean any Product that incorporates or contains an NGM Optioned Compound.

1.124 "**NGM Patents**" shall mean Patent Rights that: (i) are Controlled by NGM or any of its Affiliates (subject to Section 14.3); (ii) claim or cover: (a) the composition of matter or method of manufacture or use of an Optioned Compound, Optioned Product, Small Molecule Collaboration Compound or Small Molecule Product; (b) NGM Know-How; or (c) (1) the Optioned Target Modulated by such Optioned Compound or Optioned Product; or (2) the Collaboration Target Modulated by such Small Molecule Collaboration Compound or Small Molecule Product; and (iii) are filed as of or after the Execution Date. The NGM Patents, as of the Execution Date are set forth on Exhibit B. For the purpose of clarity, "NGM Patents" pertain to Optioned Compounds, Optioned Products, Small Molecule Collaboration Compounds, Small Molecule Products, Optioned Targets and/or Collaboration Targets, as applicable, as opposed to "NP201 Patents" which pertain to NP201 Compounds, NP201 Products and NP201 Targets. There may be overlap between "NP201 Patents" and "NGM Patents" to the extent Patent Rights satisfy both definitions.

1.125 "**NGM Prosecuted Patents**" shall have the meaning set forth in Section 12.2.1.

1.126 "**NP201**" shall mean: (a) growth and differentiation factor 15 (GDF15), with ACCESSION # Q99988 (Uniprot), a hormone identified by NGM as of the Execution Date as potentially useful for the treatment of metabolic diseases, including diabetes and obesity; and (b) naturally occurring variants thereof.

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1.127 "**NP201 Compound**" shall mean any antibody, peptide, or other large molecule, or small molecule, that: (a) [*]; and (b) is: (i) discovered or identified by NGM as of the Execution Date (including those molecules internally designated by NGM as of the Execution Date as NGM395, NGM386 and NGM160); (ii) [*]; (iii) any modified form, variants or derivatives of an antibody, peptide, or other large molecule, or small molecule, described in foregoing clause (i) or (ii); or (iv) [*]. For clarity, "NP201 Compound" expressly excludes any antibody, peptide, or other large molecule, or small molecule, [*], *unless* such antibody, peptide, or other large molecule, or small molecule, [*], in which case it will be deemed to be an NP201 Compound.

1.128 "**NP201 Development Candidates**" shall have the meaning set forth in Section 3.2.1.

1.129 "**NP201 IP**" shall mean the NP201 Know-How and NP201 Patents.

1.130 "**NP201 Know-How**" shall mean any and all Know-How (whether patentable or otherwise), including animal models, manufacturing technology and *in vivo* and *in vitro* screening assays and methods for optimization and characterization of compounds that is: (i) Controlled by NGM or any of its Affiliates (subject to Section 14.3) as of the Execution Date or during the Term; and (ii) (a) to the extent Controlled during the NP201 Research Term, is reasonably necessary or useful, or (b) to the extent only Controlled after the expiration of the NP201 Research Term, is reasonably necessary, in each case of (ii) (a) and (b), for the research, Development, manufacture, use or Commercialization of NP201 Compounds or NP201 Products; provided, however, that "NP201 Know-How" shall not include any of NGM's proprietary gene or peptide delivery technologies that are used solely for research purposes, including discovery of antibodies, peptides or other large molecule or small molecule compounds.

1.131 "**NP201 Patents**" shall mean Patent Rights that: (i) are Controlled by NGM or any of its Affiliates (subject to Section 14.3); (ii) claim or cover: (a) the composition of matter or method of manufacture or use of a NP201 Compound or NP201 Product; (b) NP201 Know-How; or (c) NP319, including the use or modulation thereof; and (iii) are filed as of or after the Execution Date. The NP201 Patents, as of the Execution Date, are set forth on Exhibit A.

1.132 "**NP201 Product**" shall mean any pharmaceutical preparation or Combination Product that incorporates or contains an NP201 Compound. For the sake of clarity, "NP201 Product" includes any formulation or dosage strength of such a pharmaceutical preparation.

1.133 "**NP201 Program**" shall mean all activities, rights and obligations of each Party under this Agreement relating to NP201 Compounds, including under the NP201 Research Collaboration.

1.134 "**NP201 Project Leader**" shall have the meaning set forth in Section 2.12.

1.135 "**NP201 Research Collaboration**" shall mean the research and Early Development program on NP201 to be conducted by NGM and Merck pursuant to the NP201 Research Plan.

1.136 "**NP201 Research Plan**" shall mean the research plan attached to this Agreement as Schedule 1.136, which may be modified by the Joint NP201 Committee from time-to-time in accordance with Section 2.4.2.

1.137 "**NP201 Research Term**" shall mean the term of the NP201 Research Collaboration, which shall commence on the Effective Date and continue until the end of the Initial Research Program Term.

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1.138 "**NP319**" shall mean: (a) the cognate receptor for NP201, identified by NGM as of the Execution Date, [*]; and (b) naturally occurring variants thereof.

1.139 "**Non-Identifiable Data**" shall have the meaning set forth in Section 8.2.6.

1.140 "**Non-Qualifying Compounds**" shall have the meaning set forth in Section 4.4.3.

1.141 "**Non-Qualifying Targets**" shall have the meaning set forth in Section 4.4.3.

1.142 "**Officials**" shall have the meaning set forth in Section 8.2.3.

1.143 "**Optioned Compound**" shall mean any Option Subject Compound as to which Merck has exercised the Merck Option pursuant to Section 5.3.

1.144 "**Optioned Product**" shall mean any pharmaceutical preparation that incorporates or contains any Optioned Compound, in any formulation, whether as the sole active ingredient or in combination with one or more other active agents.

1.145 "**Option Subject Compound**" shall mean any POC Compound that is the subject of a Merck Option (*i.e.*, a POC Compound that has been the subject of a completed POC Trial), which option has not expired unexercised, and any Related Compound (whether identified before or after exercise of such Merck Option) of such POC Compound.

1.146 "**Optioned Target**" shall mean, with respect to a particular Optioned Compound, the Collaboration Target Modulated by such Optioned Compound.

1.147 "**Option Fee**" shall have the meaning set forth in Section 9.4.

1.148 "**Option Period**" shall have the meaning set forth in Section 5.3.1.

1.149 "**Other Actives**" shall have the meaning set forth in Section 1.113.

1.150 "**Other Income**" shall have the meaning set forth in Schedule 1.5.

1.151 "**Outstanding Development Payments**" shall have the meaning set forth in Section 7.5.5(a).

1.152 "**Partnered Compound**" shall mean any antibody, peptide, or other large molecule, or small molecule, that is Within 3rd Party Rights as a result of the rights of a Third Party Partner pursuant to the applicable Existing Collaboration Agreement; provided, however, that the applicable compound shall cease being a "Partnered Compound" as and to the extent set forth in Section 4.8. For clarity, "Partnered Compounds" do not include any antibody, peptide or other large molecule or small molecule that was discovered, identified or reduced to practice, or was otherwise researched or developed by, NGM or an Affiliate of NGM prior to the Effective Date or during the Full Research Program Term and either: (a) [*]; or (b) [*].

1.153 "**Partnered Target**" shall mean any DNA sequence, RNA sequence, protein or peptide that is Within 3rd Party Rights as a result of the rights of a Third Party Partner with respect thereto pursuant to the applicable Existing Collaboration Agreement, subject to Section 4.8.3. For clarity, "Partnered Targets" do not include: (i) any DNA sequence, RNA sequence, protein or peptide that was discovered, identified or reduced to practice, or was otherwise researched or developed, and/or validated, by NGM or an Affiliate of NGM (subject to Section 14.3) during the conduct of the Collaboration; or (ii) any of those targets set forth on Schedule 1.36.

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1.154 "**Party**" and "**Parties**" shall have the meaning given such terms in the preamble to this Agreement.

1.155 "**Patent and Trademark Expenses**" shall have the meaning set forth in Schedule 1.5.

1.156 "**Patent Rights**" shall mean any and all patents and patent applications (which for the purpose of this Agreement shall be deemed to include certificates of invention and applications for certificates of invention), including divisionals, continuations, continuations-in-part, reissues, renewals, substitutions, registrations, re-examinations, revalidations, extensions, supplementary protection certificates and the like of any such patents and patent applications, and foreign equivalents of the foregoing.

1.157 "**Payee**" shall have the meaning set forth in Section 9.11.1.

1.158 "**Payer**" shall have the meaning set forth in Section 9.11.1.

1.159 "**Payment**" shall have the meaning set forth in Section 8.2.3.

1.160 "**Person**" shall mean any individual, partnership, joint venture, limited liability company, corporation, firm, trust, association, unincorporated organization, governmental authority or agency, or any other entity not specifically listed herein.

1.161 "**Personal Data**" shall have the meaning set forth in Section 8.2.6.

1.162 "**Phase 1 Clinical Trial**" shall mean a human clinical trial in any country that would satisfy the requirements of 21 CFR 312.21(a).

1.163 "**Phase 2 Clinical Trial**" shall mean a human clinical trial in any country that would satisfy the requirements of 21 CFR 312.21(b).

1.164 "**Phase 3 Clinical Trial**" shall mean a human clinical trial in any country that would satisfy the requirements of 21 CFR 312.21(c).

1.165 "**Phase 4 Clinical Trial**" shall mean: (i) any human clinical trial (other than a Phase 1 Clinical Trial, Phase 2 Clinical Trial or Phase 3 Clinical Trial) in any country which is conducted on a product for an Indication after Marketing Authorization for such product has been obtained from an appropriate Regulatory Authority in such country for such Indication, and includes: (a) clinical trials conducted voluntarily after Marketing Authorization for enhancing marketing or scientific knowledge of an approved Indication; or (b) trials conducted after Marketing Authorization due to request or requirement of a Regulatory Authority or as a condition of a previously granted Marketing Authorization; or (ii) any REMS/RMP related study of a product for an Indication after Marketing Authorization for such product has been obtained from an appropriate Regulatory Authority in such country for such Indication.

1.166 "**Physiologically Relevant Threshold**" means, unless the Parties agree upon different criteria for the applicable Collaboration Target or Retained Target, a level of activity/potency with respect to such Collaboration Target or Retained Target [*]: (a) for an antibody, peptide or large molecule, [*] or less with respect to such Collaboration Target or Retained Target, [*]; or (b) for small molecules, [*] or less with respect to such Collaboration Target or Retained Target, [*].

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1.167 "**POC Compound**" shall mean a given Research Program Development Candidate or Tail Compound, as applicable, which is the subject of a POC Trial.

1.168 "**Post-Approval Product Development Expenses**" shall have the meaning set forth in Schedule 1.5.

1.169 "**Principal Investigator**" shall mean Jin-Long Chen, Ph.D., Chief Scientific Officer of NGM as of the Execution Date.

1.170 "**Product Liability Losses**" shall have the meaning set forth in Schedule 1.5.

1.171 "**Projected Plans and Budgets**" shall have the meaning set forth in Section 7.5.1.

1.172 "**Prior CDA**" shall have the meaning set forth in Section 16.8.

1.173 "**Product**" shall mean any Optioned Product or NP201 Product, in any formulation or dosage strength (and, for clarity, all formulations and dosage strengths of a given Product shall be considered the same Product for purposes of this Agreement).

1.174 "**Product Development Plan and Budget**" shall mean, with respect to a particular NGM Optioned Product, a development plan setting forth in reasonable detail specific Clinical Studies and related Development activities to be performed with respect to such NGM Optioned Product, through Marketing Authorization in the Territory, and in particular in each of the US, EU and Japan, and the budget for such Development activities.

1.175 "**Product Specific Manufacturing Variances**" shall have the meaning set forth in Schedule 1.5.

1.176 "**Program Compound**" shall mean any Optioned Compound or NP201 Compound.

1.177 "**Proof of Concept**" or "**POC**" shall mean the demonstration of either: (a) [*]; or (b) [*].

1.178 "**Proof of Concept Trial**" or "**POC Trial**" shall mean with respect to any Research Program Development Candidate, NP201 Development Candidate or Tail Compound, as applicable, the first human clinical trial that either: (i) is reasonably designed to; and/or (ii) actually does, establish POC in humans. For clarity, the concept of a "Proof of Concept Trial" is intended only to identify the time point at which the POC of a particular Research Program Development Candidate, NP201 Development Candidate or Tail Compound has been demonstrated, and a "Proof of Concept Trial" is not [*]

1.179 "**Provided NP319 Antagonists**" shall have the meaning set forth in Section 3.1.1(b).

1.180 "**Providers**" shall have the meaning set forth in Section 8.3.

1.181 "**Quarterly Research Funding**" shall have the meaning set forth in Section 4.2.3(c).

1.182 "[*]" shall have the meaning set forth in Section 9.5.1.

1.183 "**Reference Product Sponsor**" shall have the meaning set forth in Section 12.6.

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1.184 "**Refused Candidates**" shall have the meaning set forth in Section 5.3.2.

1.185 "**Regulatory Authority**" shall mean any applicable government regulatory authority involved in granting approvals for the manufacturing, marketing, reimbursement and/or pricing of a Program Compound, Small Molecule Collaboration Compound, Product or Small Molecule Product in the Territory, including, in the US, the United States Food and Drug Administration and any successor governmental authority having substantially the same function.

1.186 "**Related Compound**" shall mean, with respect to a POC Compound, and the Collaboration Target that it Modulates, all: (i) other Collaboration Compounds that: (a) [*]; and (b) [*]; and (ii) [*] that: (a) [*]; (b) [*]; and (c) [*].

1.187 "**Related Party**" shall mean each of Merck, its Affiliates and their respective sublicensees (which term does not include distributors), as applicable.

1.188 "**Report**" shall have the meaning set forth in Section 3.7.

1.189 "**Requesting Party**" shall have the meaning set forth in Section 10.7.2(b).

1.190 "**Required Disclosure**" shall have the meaning set forth in Section 10.7.2(a).

1.191 "**Research Data Sets**" shall have the meaning set forth in Section 8.2.6.

1.192 "**Research Funding**" shall have the meaning set forth in Section 4.2.3(c).

1.193 "**Research Funding Cap**" shall have the meaning set forth in Section 4.2.3(a).

1.194 "**Research Funding Budget**" shall have the meaning set forth in Section 4.2.3(a).

1.195 "**Research Program**" shall have the meaning set forth in Section 2.1(b).

1.196 "**Research Program Development Candidate**" shall mean a Collaboration Compound that has been determined by NGM, after reasonable discussion at the JRC, as suitable for the initiation of pre-clinical, IND-enabling studies and, if successful, Clinical Studies.

1.197 "**Research Program Term**" shall have the meaning set forth in Section 4.1.3.

1.198 "**Research Program Year**" shall mean the period from April 1 of a Calendar Year until March 31 of the subsequent Calendar Year during the Full Research Program Term.

1.199 "**Retained Compounds**" shall mean: (a) any antibody, peptide, or other large molecule, or small molecule, that activates or agonizes FGFR4 and thereby inhibits liver Cyp7A1 expression, including NGM282, variants or derivatives of FGF19, and fusion molecules of any such variants or derivatives; (b) any antibody, peptide, large molecule or small molecule compound that [*]; or (c) any antibody, peptide, or other large molecule, or small molecule, licensed by NGM from a Third Party after the Effective Date, provided that such antibody, peptide or other large molecule or small molecule: (i) does not Modulate a Collaboration Target (including any Optioned Target) in a manner that satisfies the applicable Physiologically Relevant Threshold; and (ii) was first licensed by NGM after such antibody, peptide or other large molecule, or small molecule, had been [*]. In no event will Retained Compounds include any antibody, peptide, or other large molecule, or small molecule that is identified, discovered or reduced to practice, or otherwise researched or developed, in the course of performing the Collaboration.

1.200 "**Retained Target**" shall mean any target that Merck and NGM have mutually agreed in writing will not be researched in the course of the Full Research Program Term.

1.201 [*] shall mean, [*].

1.202 [*] shall mean, [*]

1.203 [*] shall have the meaning set forth in Section [*].

1.204 "**Reviewing Party**" shall have the meaning set forth in Section 10.7.2(b).

1.205 "**Revised Baseline Projected Plans and Budgets**" shall have the meaning set forth in Section 7.5.3(a).

1.206 "**Royalty Product**" shall have the meaning set forth in Section 9.6.1.

1.207 "**Royalty Term**" shall have the meaning set forth in Section 9.6.1(d).

1.208 "**Safety Issue**" shall mean, with respect to a given Program Compound or Product: (a) an effect that is considered to be generally related to either the mechanism of action or the basic chemical structure of such Program Compound or Product which has led or is reasonably expected to lead to (i) the issuance by the FDA or the EMA of a non-approvable letter or non-approval letter to a Third Party for such Third Party's compound with the same mechanism of action or the basic chemical structure of such Program Compound or Product or (ii) the required withdrawal from the market of any compound with the same mechanism of action or the basic chemical structure of such Program Compound or Product; (b) a Regulatory Authority or safety data review board for a Clinical Study or Studies of such Program Compound or Product has required termination or suspension of a Clinical Study or Studies of such Program Compound or Product; or (c) Merck or its Affiliate reasonably believes in good faith, after due inquiry and in a manner consistent with Merck's then-current decision-making policies and procedures with respect to such a determination, that termination of the further Development of such Program Compound or Product is warranted because there is an unacceptable risk for harm in humans either based upon the observation of serious adverse effects in humans after such Program Compound or Product has been administered to or taken by humans or based upon pre-clinical *in vitro* or animal data that is predictive of serious adverse effects in humans.

1.209 "**Second Extension Period**" shall have the meaning set forth in Section 4.1.3.

1.210 "**Self-Funded Allocation Amount**" shall have the meaning set forth in Section 7.5.2.

1.211 "**Selling Expenses**" shall have the meaning set forth in Schedule 1.5.

1.212 "**Senior Executives**" shall mean: (a) with respect to Merck, [*]; and (b) with respect to NGM, the Chief Scientific Officer or the Chief Executive Officer, as the case may be and depending on the nature of the dispute at issue.

1.213 "**Sensitive Information**" shall have the meaning set forth in Section 14.2.7.

1.214 "**Significant Event**" shall have the meaning set forth in Section 4.6.

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1.215 "**Small Molecule Collaboration Compound**" shall mean any small molecule that: (a) (i) with respect to any and all Collaboration Targets (including any Non-Qualifying Target), is identified, discovered, researched or developed by Merck during the Full Research Program Term and that, but for the use of confidential and proprietary NGM Know-How or other confidential and proprietary information provided by NGM hereunder relating to such Collaboration Target would not have been so identified, discovered, researched or developed, or (ii) with respect to an Optioned Target, is identified, discovered, researched or developed by Merck during the Term and that, but for the use of confidential and proprietary NGM Know-How or other confidential and proprietary information provided by NGM hereunder relating to such Optioned Target, would not have been so identified, discovered, researched or developed; and (b) Modulates such Collaboration Target (whether a Non-Qualifying Target or an Optioned Target) in a manner that satisfies the applicable Physiologically Relevant Threshold. For clarity, "Small Molecule Collaboration Compounds" exclude any small molecule that Modulates a target that either: (i) is the same target as a Collaboration Target, but that is identified, discovered, researched or developed by Merck or any Third Party partner of Merck independently from the Collaboration and that is not identified, discovered, researched or developed but for the use of confidential and proprietary NGM Know-How or other confidential and proprietary information provided by NGM or relating to the applicable Collaboration Target; or (ii) is an Excluded Target. For clarity, Small Molecule Collaboration Compounds do not include any NP201 Compounds. In addition, a small molecule that Modulates the same target as the Collaboration Target that is Modulated by a Collaboration Compound for which the POC Data Package is delivered will not automatically be considered a Small Molecule Collaboration Compound unless it meets the criteria described in clauses (a) and (b) above.

1.216 "**Small Molecule Product**" shall mean any pharmaceutical preparation that incorporates or contains a Small Molecule Collaboration Compound in any dosage strength or formulation, whether as the sole active ingredient or in combination with one or more other active agents. For clarity, a Small Molecule Product may be a Combination Product.

1.217 "**Stock Purchase Agreement**" shall mean that certain Stock Purchase Agreement entered into between NGM and Merck contemporaneously with this Agreement.

1.218 "**Tail Compounds/Targets**" shall have the meaning set forth in Section 4.4.1.

1.219 "**Tail Period**" shall mean Tail Year 1, 2 and 3, collectively.

1.220 "**Tail Year**" shall have the meaning set forth in Section 4.4.1.

1.221 "**Taxes**" shall have the meaning set forth in Section 9.11.1.

1.222 "**T1D**" shall mean type 1 diabetes.

1.223 "**T2D**" shall mean type 2 diabetes.

1.224 "**Technical Issues**" shall have the meaning set forth in Section 5.3.3.

1.225 "**Term**" shall have the meaning set forth in Section 13.1.

1.226 "**Territory**" shall mean all of the countries in the world, and their territories and possessions.

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1.227 "**Testing Costs**" shall have the meaning set forth in Schedule 1.5.

1.228 "**Third Party**" shall mean an entity other than Merck and its Affiliates, and NGM and its Affiliates.

1.229 "**Third Party Patent Licenses**" shall have the meaning set forth in Section 9.6.1(h).

1.230 "**Third Party Partner**" shall mean, for an Existing Collaboration Agreement, the Third Party that is the counterparty (to NGM) in such agreement.

1.231 "**Total Deferred Costs**" shall have the meaning set forth in Section 7.5.5(c).

1.232 "**Transferred Compounds**" shall have the meaning set forth in Section 14.4.2(a).

1.233 "**Transferred Products**" shall have the meaning set forth in Section 14.4.2(b)(ii).

1.234 "**Unpaid Costs**" shall have the meaning set forth in Section 7.5.3(a).

1.235 "**US**" shall mean the United States of America, including its territories and possessions.

1.236 "**US GAAP Standard Cost**" shall have the meaning set forth in Schedule 1.5.

1.237 "**Valid Patent Claim**" shall mean any claim of an issued and unexpired patent within the Merck Product Patents, NGM Patents, NP201 Patents or Collaboration Patents that claims or covers [*] in each case which claim has not been revoked or held unenforceable, invalid or unpatentable by a court or other governmental body having competent jurisdiction in a decision for which no appeal can or has been taken, and which has not been rendered unenforceable through disclaimer denial or admission of invalidity or unenforceable through reissue, re-examination or otherwise.

1.238 "**Violation**" shall mean that either NGM, or any of its Affiliates, or its or their, officers or directors has been: (a) convicted of any of the felonies identified among the exclusion authorities listed on the US Department of Health and Human Services, Office of Inspector General (OIG) website, including 42 U.S.C. § 1320a-7(a) (**https://oig.hhs.gov/exclusions/index.asp**); and/or (b) identified in the OIG List of Excluded Individuals/Entities (LEIE) database (**https://oig.hhs.gov/exclusions/exclusions_list.asp**) or the US General Services Administration's list of Parties Excluded from Federal Programs (**https://www.sam.gov/portal/public/SAM/**) (each of (a) and (b), singly and collectively, the "**Exclusions Lists**").

1.239 "**Withholding Tax Action**" shall have the meaning set forth in Section 9.11.3.

1.240 "**Within 3rd Party Rights**" shall mean, with respect to a particular antibody, peptide, or other large molecule, or small molecule, DNA sequence or RNA sequence, that such antibody, peptide, or other large molecule, or small molecule, DNA sequence, or RNA sequence is covered by or within the scope of unexpired license rights or option rights granted by NGM to a Third Party Partner pursuant to the applicable Existing Collaboration Agreement, as of the applicable time.

1.241 "**Working Group**" shall have the meaning set forth in Section 2.13.

ARTICLE 2
COLLABORATION OVERVIEW; GOVERNANCE

2.1 **Overview of Collaboration**. The Parties intend and have agreed to undertake a broad collaboration under this Agreement consisting, in general, of the following major components:

(a) the grant to Merck of a worldwide, exclusive license by NGM, as of the Effective Date, with respect to NGM's NP201 Compounds and NP201 Products and the continuation by the Parties of certain research and development activities with respect to such compounds and products, all as set forth in Article 3;

(b) a broad research and early development program to be conducted by NGM during the Full Research Program Term (the "**Research Program**"), pursuant to which: (i) NGM will conduct research, discovery and pre-clinical development efforts with respect to targets, other than Excluded Targets, and including targets that NGM may identify through any activities under the Collaboration whether intentionally directed at identification of targets or otherwise, in an effort to identify and develop Collaboration Compounds that Modulate such targets in a manner that satisfies the applicable Physiologically Relevant Threshold, without limitation with respect to a disease area of focus, as well as NGM's innovation efforts in antibody and protein engineering; to be funded by Merck, all as further detailed in Article 4; and (ii) NGM will conduct early stage clinical studies of Research Program Development Candidates arising from such research efforts through POC Trial and delivery of the Data Package associated with each POC Compound, to be funded by Merck, as further detailed in Article 4;

(c) the grant to Merck of an exclusive option, exercisable following review of the Data Package following the POC Trial for a particular POC Compound, to obtain an exclusive, worldwide license to such POC Compound and its Related Compounds, as further detailed in Article 5;

(d) in the event of exercise of the Merck Option with respect to a given POC Compound, NGM will have an option to either: (i) receive milestones and royalties associated with such POC Compound; or (ii) participate in the Adjusted Net Sales associated with such POC Compound, in exchange for co-funding a share of the Development Costs and Allowable Expenses associated with such POC Compound, and an option to Co-Detail such POC Compound in the US, all as detailed and pursuant to Article 7; and

(e) the grant to Merck of a worldwide, exclusive license by NGM, as of the Effective Date, to pursue, at its sole option, the research and development and, if successful, commercialization of Small Molecule Collaboration Compounds that potentially Modulate one or more Collaboration Targets, as further set forth in Article 6.

2.2 General Roles of the Parties. In general, the Parties shall have the following roles, except as expressly set forth in this Agreement:

(a) NGM shall be primarily responsible for all research and discovery of Collaboration Targets and Collaboration Compounds and Early Development activities, including pre-POC process development and pre-POC CMC activities, with respect to Research Program Development Candidates prior to exercise by Merck of the Merck Option, and Merck may contribute to IND-enabling and pre-POC activities as further detailed in Section 4.1.1 and Section 4.1.7;

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(b) After exercise of a Merck Option, Merck will be solely responsible for all Clinical Studies and other Development activities (including post-POC CMC) after the POC Trial, and all manufacture and Commercialization of Optioned Compounds and associated Products in and for the Territory, subject to the NGM ANS Option and Co-Detailing Option;

(c) Merck will be solely responsible for all research, Development and Commercialization of Small Molecule Collaboration Compounds and Small Molecule Products; and

(d) Merck and NGM will be responsible for research and the IND-enabling portion of Early Development in accordance with the NP201 Research Plan, if applicable, with respect to NP201 Compounds and in addition Merck will be responsible for all other Development and Commercialization of NP201 Compounds and NP201 Products, subject to the NGM ANS Option and Co-Detailing Option.

2.3 **General Guidelines**. The Parties intend for the following guidelines to apply generally to their activities hereunder: (i) NGM will have the authority to direct research strategy and shall use Commercially Reasonable Efforts to conduct the Research Program independently during the Full Research Program Term, and subject to the terms and conditions of this Agreement; (ii) the Parties desire to engender an atmosphere of robust scientific inquiry and freedom to pursue biological insights, and pursue Collaboration Compounds that meet activity thresholds, preclinical candidate and/or target product profiles conceived of by NGM; and (iii) the Parties intend, through their activities hereunder, to discover and develop especially inventive, novel therapies that can improve the lives of patients around the world and that have unambiguous, promotable advantages with respect to existing treatments.

2.4 **Joint NP201 Committee**. The Parties hereby establish a committee to facilitate the conduct of the NP201 Research Collaboration as follows:

2.4.1 *Composition of the Joint NP201 Committee.* The joint NP201 Research Collaboration committee (the "**Joint NP201 Committee**") shall comprise an equal number of Merck representatives and NGM representatives. Each Party may change its representatives to the Joint NP201 Committee from time to time in its sole discretion, effective upon notice to the other Party of such change. These representatives shall have appropriate technical credentials, experience and knowledge, and ongoing familiarity with the NP201 Research Collaboration's activities. Additional representative(s) or consultant(s) may, from time to time, by mutual consent of the Parties, be invited to attend Joint NP201 Committee meetings; provided, however, that such representative(s) or consultant(s) are involved in activities related to the NP201 Program and are subject to such representative's or consultant's written agreement to comply with the requirements of Section 10.1. The Joint NP201 Committee shall be chaired by a representative of Merck. The chair shall have the responsibilities set forth in Section 2.4.5 but shall have no additional powers or rights beyond those held by other Joint NP201 Committee representatives.

2.4.2 *Function and Powers of the Joint NP201 Committee.* With respect to the NP201 Program, the Joint NP201 Committee shall have general oversight of the NP201 Research Collaboration and confer regarding the status of the NP201 Research Collaboration, approve all amendments to the NP201 Research Plan, determine the resources and activities allocated by each Party to the NP201 Research Collaboration (which resources and activities will be set forth in the NP201 Research Plan). Subject to Merck's final decision-making rights in accordance with Section 2.4.3 regarding the NP201 Program, the Joint NP201 Committee shall oversee and facilitate the conduct of Early Development of NP201 Compounds through their respective POC Trials, including:

[*]

For clarity, the NP201 Committee will not oversee the Parties' activities following a NP201 Compound's completion of a POC Trial, and such post-POC activities shall be under the purview of the JLDC pursuant to Section 2.7 or the JCC pursuant to Section 2.10, as, and to the extent, applicable.

2.4.3 *Joint NP201 Committee Decision-Making*. Decisions of the Joint NP201 Committee shall be made unanimously with each Party having one vote (*i.e.*, all representatives of a Party must vote as a single block). In the event that the Joint NP201 Committee cannot or does not, after good faith efforts during a period of not more than fourteen (14) days, reach agreement on an issue, the resolution and/or course of conduct shall be referred to Merck's [*] and the Chief Scientific Officer of NGM. If such individuals are unable to resolve the dispute within fourteen (14) days after such referral then such matter will be determined by Merck, in good faith and its sole discretion, subject to further modification of Merck's final decision as a result of feedback from internal Merck committees within a reasonable time frame; provided, however, Merck shall not have the deciding vote with respect to any amendment to the NP201 Research Plan that would [*] or [*]; or [*] or [*].

2.4.4 *Joint NP201 Committee Meetings.* The Joint NP201 Committee shall meet in accordance with a schedule established by mutual written agreement of the Parties, but no less than once per Calendar Quarter, unless the Parties mutually agree in writing to a different frequency, with the location for such meetings alternating between NGM and Merck facilities (or such other location as may be determined unanimously by the Joint NP201 Committee members). Alternatively, the Joint NP201 Committee may meet by means of teleconference, videoconference or other similar communications equipment. Each Party shall bear its own expenses related to the attendance of such meetings by its representatives.

2.4.5 *Joint NP201 Committee Agendas*. The chair of the Joint NP201 Committee or the designated Merck Alliance Manager shall be responsible for distributing an agenda for each Joint NP201 Committee meeting at least ten (10) days in advance of such meeting. Each Party shall have the right to request that the chair to include any appropriate matter (*i.e.*, additional topics) on the agenda, which requests shall be accommodated by the chair. The chair or the designated Merck Alliance Manager shall be responsible for generating and issuing, in accordance with Section 2.4.6, minutes of each Joint NP201 Committee meeting.

2.4.6 *Joint NP201 Committee Minutes.* The Joint NP201 Committee shall keep minutes with respect to decisions taken by it regarding the NP201 Research Collaboration, which minutes will be issued in draft form and provided to the NP201 Project Leaders and the Joint NP201 Committee representatives of each Party for review. Any corrections or comments must be provided to the chair within ten (10) days after the draft minutes are issued, who shall then issue the approved (or, if no comments are provided within such ten (10)-day period, deemed approved) minutes in final form to the NP201 Project Leaders and the Joint NP201 Committee representatives of each Party.

2.4.7 *Discontinuation of Participation on the Joint NP201 Committee.* The Joint NP201 Committee shall disband upon the earlier of: (a) the end of the conduct of the NP201 Research Collaboration; (b) the termination of this Agreement with respect to the NP201 Program; and (c) NGM providing written notice to Merck of its intention to disband and no longer participate in the Joint NP201 Committee. In the event that the Joint NP201 Committee is disbanded, any decisions and discussions originally before the Joint NP201 Committee shall be handled directly between the Parties, without any change to decision-making authority.

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2.5 **Joint Research Committee or JRC**. Subject to, and without limiting the authority of, the Joint NP201 Committee, the Parties hereby establish a committee to provide a forum to review the scientific research under the Research Program as follows:

2.5.1 *Composition of the Joint Research Committee.* The joint research committee (the "**Joint Research Committee**" or "**JRC**") shall comprise an equal number of Merck representatives and NGM representatives. Each Party may change its representatives to the JRC from time to time in its sole discretion, effective upon notice to the other Party of such change. These representatives shall have appropriate technical credentials, experience and knowledge, and ongoing familiarity with the Research Program's activities. Additional representative(s) or consultant(s) may, from time to time, by mutual consent of the Parties, be invited to attend JRC meetings, subject to such representative's or consultant's written agreement to comply with the requirements of Section 10.1. The JRC shall be chaired by a representative of NGM. The chair shall have the responsibilities set forth in Section 2.5.4 but shall have no additional powers or rights beyond those held by other JRC representatives.

2.5.2 *Function and Powers of the JRC with respect to the Research Program.* With respect to the Research Program, the JRC shall serve as a forum for: (i) the review of the progress of the research (prior to Research Program Development Candidate nomination) conducted under the Research Program by NGM and, if applicable; and (ii) discussion of research being conducted by Merck with respect to any Small Molecule Collaboration Compounds pursuant to Section 6.2. The JRC shall act solely as an advisory, and not a decision-making, body with respect to either the Research Program or Small Molecule Collaboration Compounds. Without limiting the foregoing, the JRC shall also be a forum for NGM to advise Merck regarding: (a) any freedom to operate issues involving Collaboration Targets and Collaboration Compounds; (b) any adverse events; and (c) target product profiles for Collaboration Compounds.

2.5.3 *JRC Meetings.* The JRC shall meet twice per Calendar Year, or more frequently as the Parties may agree, in accordance with a schedule established by mutual written agreement of the Parties, with the location for such meetings alternating between NGM and Merck facilities (or such other location as may be determined unanimously by the JRC members). Alternatively, the JRC may meet by means of teleconference, videoconference or other similar communications equipment. Each Party shall bear its own expenses related to the attendance of such meetings by its representatives.

2.5.4 *JRC Agendas*. The chair of the JRC shall be responsible for distributing an agenda for each JRC meeting at least ten (10) days in advance of such meeting. Each Party shall have the right to request the chair to include any appropriate matter on the agenda, which requests shall be accommodated by the chair. The chair shall be responsible for generating and issuing minutes, in accordance with Section 2.5.5, of each JRC meeting, which shall include a summary of any actions agreed at the meeting.

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2.5.5 *JRC Minutes*. The JRC shall keep minutes with respect to matters before it, which minutes will be issued in draft form and provided to the JRC representatives of each Party for review. Any corrections or comments must be provided to the chair within ten (10) days after the draft minutes are issued, who shall then issue the approved (or, if no comments are provided within such ten (10)-day period, deemed approved) minutes in final form to the JRC representatives of each Party.

2.5.6 *Discontinuation of Participation on the JRC.* The JRC shall disband with respect to the Research Program upon the earlier of: (a) the end of the Full Research Program Term; (b) the termination of this Agreement with respect to the Research Program; and (c) NGM providing written notice to Merck of its intention to disband and no longer participate in the JRC. In the event that the JRC is disbanded any discussions originally before the JRC shall be handled directly between the Parties, without any change to decision-making authority.

2.5.7 *NGM Decisions.* For clarity, NGM shall have final decision-making authority with respect to all decisions under the Research Program relating to:

[*]

For clarity, NGM shall have no decision-making authority with respect to any Small Molecule Collaboration Compound.

2.6 **Joint Early Development Committee or JEDC**. Subject to, and without limiting the authority of, the Joint NP201 Committee, upon the nomination of the first Collaboration Compound to reach the stage of nomination by NGM as a Research Program Development Candidate, the Parties agree to establish a joint early development committee ("**Joint Early Development Committee**" or "**JEDC**") to facilitate the conduct of Early Development of that, and any subsequent, Research Program Development Candidates, through POC Trial, as follows:

2.6.1 *Composition of the JEDC.* The JEDC shall comprise three (3) representatives of Merck and three (3) representatives of NGM. Each Party may change its representatives to the JEDC from time to time in its sole discretion, effective upon notice to the other Party of such change. These representatives shall have expertise in preclinical development and early stage clinical development. The JEDC shall be chaired by a representative of NGM. The chair shall have the responsibilities set forth in Section 2.8.2, but shall have no additional powers or rights beyond those held by the other JEDC representatives.

2.6.2 *Function and Powers of the JEDC.* Subject to NGM's final decision-making rights in accordance with Section 2.9.2, the JEDC shall oversee and facilitate the conduct of Early Development of Research Program Development Candidates through the POC Trial, including:

[*]

2.7 **Joint Later Development Committee or JLDC**. Following exercise of the first Merck Option with respect to an Optioned Compound, or upon completion of the first POC Trial for the first NP201 Compound, the Parties agree to establish a joint development committee (the "**Joint Later Development Committee**" or "**JLDC**") to oversee the conduct of the Development of such NP201 Compounds, Optioned Compounds and Products, as follows:

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2.7.1 *Composition of the JLDC.* The JLDC shall comprise three (3) representatives of Merck and three (3) representatives of NGM. Each Party may change its representatives to the JLDC from time to time in its sole discretion, effective upon notice to the other Party of such change. Individuals who are members of the JEDC may also be members of the JLDC. These representatives shall have expertise and operational responsibilities for Development and/or registration of pharmaceutical products in the therapeutic area(s) relevant to the Optioned Compounds, NP201 Compounds and Products, and sufficient seniority within the applicable Party consistent with the scope of the JLDC's responsibilities. The JLDC shall be chaired by a representative of Merck. The chair shall have the responsibilities set forth in Section 2.8.2, but shall have no additional powers or rights beyond those held by the other JLDC representatives.

2.7.2 *Function and Powers of the JLDC.* Subject to Merck's final decision-making rights in accordance with Section 2.9.3, the JLDC shall oversee the later (*i.e.*, post POC Trial) Development of all Optioned Compounds, NP201 Compounds and Products, including:

[*]

2.8 Meetings, Minutes and Agendas of the JEDC and JLDC.

2.8.1 *Meetings.* The JEDC and JLDC shall meet in accordance with a schedule established by mutual written agreement of the Parties, but no less frequently than once per Calendar Quarter, with the location for such meetings alternating between NGM and Merck facilities (or such other location as may be determined unanimously by the JRC members). Alternatively, the JEDC and JLDC may meet by means of teleconference, videoconference or other similar communications equipment. Each Party shall bear its own expenses related to the attendance of such meetings by its representatives.

2.8.2 *Agendas*. The chair of the JEDC and JLDC shall be responsible for distributing an agenda for each committee meeting at least ten (10) days in advance of such meeting. Each Party shall have the right to request the chair to include any matter on the agenda, which requests shall be accommodated by the chair. The chair shall be responsible for generating and issuing, in accordance with Section 2.8.3, minutes of each JEDC and JLDC meeting, which shall include a summary of any actions agreed at the meeting.

2.8.3 *Minutes.* The JEDC and JLDC shall keep minutes with respect to decisions taken by it, which minutes will be issued in draft form and provided to the JEDC and JLDC representatives of each Party for review. Any corrections or comments must be provided to the chair within ten (10) days after the draft minutes are issued, who shall then issue the approved (or, if no comments are provided within such ten (10)-day period, deemed approved) minutes in final form to the JEDC and JLDC representatives of each Party.

2.8.4 *Discontinuation of Participation.* The JEDC shall disband upon the earlier of: (a) the end of the Full Research Program Term; (b) NGM providing written notice to Merck of its intention to disband and no longer participate in the JEDC; and (c) the termination of this Agreement with respect to the Research Program. The JLDC shall disband upon the earlier of: (i) NGM providing written notice to Merck of its intention to disband and no longer participate in the JLDC; and (ii) termination of this Agreement with respect to all NGM Optioned Products. In the event that either the JEDC or JLDC is disbanded any decisions and discussions originally before the JEDC or JLDC, as applicable, shall be handled directly between the Parties, without any change to decision-making authority.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.9 Decision-Making within the Joint Development Committees; Final Decision-Making Rights.

2.9.1 *Decisions.* The JEDC and JLDC shall act by consensus to the extent that it has decision-making authority under this Agreement. The representatives from each Party on the JEDC and JLDC will have, collectively, one (1) vote on behalf of that Party.

2.9.2 *Disputes within the JEDC.* In the event an issue arises at the JEDC on which such committee, after a good faith effort, cannot reach consensus within a period of thirty (30) days, then either Party shall have the right to refer such issue for resolution to the Senior Executives, and if such Senior Executives are unable to resolve such issue after a period of ten (10) Business Days, then NGM shall have the final say with respect to such issue, including the POC Trial and its design and endpoints, and the selection of Indications that should be addressed by any given proposed Research Program Development Candidate.

2.9.3 *Disputes within the JLDC.* In the event an issue arises at the JLDC on which such committee, after a good faith effort, cannot reach consensus within a period of 30 days, then either Party shall have the right to refer such issue for resolution to the Senior Executives, and if such Senior Executives are unable to resolve such issue after a period of ten (10) Business Days, then Merck shall have the final say with respect to such issue, subject to further modification of Merck's final decision as a result of feedback from internal Merck committees within a reasonable time frame; provided, however, that Merck may not unilaterally decide to [*] or [*] except [*].

2.10 The Joint Commercialization Committee or JCC.

2.10.1 *Composition of the JCC.* Following the first exercise of the NGM ANS Option and upon positive read-out from the first Phase 3 Clinical Trial with respect to which such option was exercised, the Parties agree to establish a joint commercialization committee (the "**Joint Commercialization Committee**" or "**JCC**") with respect to such NGM Optioned Product and any subsequent NGM Optioned Products. The JCC shall comprise an equal number of representatives of Merck and representatives of NGM (but in no event more than two (2) representatives from each Party). Each Party may change its representatives to the JCC from time to time in its sole discretion, effective upon notice to the other Party of such change. The JCC shall be chaired by a representative of Merck.

2.10.2 *Function and Powers of the JCC.* Subject to Merck's final decision-making rights, the JCC shall oversee and manage the Commercialization of each NGM Optioned Product, including:

[*]

2.10.3 *JCC Meetings.* The JCC shall meet twice per Calendar Year (except in the Calendar Year immediately preceding the anticipated First Commercial Sale of an NGM Optioned Product that NGM is Co-Detailing and during the Calendar Year of such First Commercial Sale, during which Calendar Years the JCC shall meet once per Calendar Quarter), or more frequently as the Parties may agree, in accordance with a schedule established by mutual written agreement of the Parties, with the location for such meetings alternating between NGM and Merck facilities (or such other location as may be determined unanimously

by the JCC members). Alternatively, the JCC may meet by means of teleconference, videoconference or other similar communications equipment. Each Party shall bear its own expenses related to the attendance of such meetings by its representatives.

2.10.4 *JCC Agendas*. The chair of the JCC shall be responsible for distributing an agenda for each JRC meeting at least ten (10) days in advance of such meeting. Each Party shall have the right to request the chair to include any matter on the agenda, which requests shall be accommodated by the chair. The chair shall be responsible for generating and issuing minutes of each JCC meeting, which shall include a summary of any actions agreed at the meeting.

2.10.5 *JCC Minutes.* The JCC shall keep minutes with respect to decisions taken by it, which minutes will be issued in draft form and provided to the JCC representatives of each Party for review. Any corrections or comments must be provided to the chair within ten (10) days after the draft minutes are issued, who shall then issue the approved (or, if no comments are provided within such ten (10)-day period, deemed approved) minutes in final form to the JCC representatives of each Party.

2.10.6 *Discontinuation of Participation on the JCC.* The JCC shall disband upon the earlier of: (a) NGM providing written notice to Merck of its intention to disband and no longer participate in the JCC; (b) Merck providing written notice to NGM of its intention to disband and no longer participate in the JCC; and (c) termination of this Agreement with respect to all NGM Optioned Products. In the event that the JCC is disbanded any decisions and discussions originally before the JCC shall be handled directly between the Parties, without any change to decision-making authority (*i.e.*, subject to Merck's final decision making rights).

2.10.7 *Decisions.* The JCC shall act by consensus to the extent that it has decision-making authority under this Agreement.

2.10.8 *Disputes within the JCC.* In the event an issue arises at the JCC involving an NGM Optioned Product with respect to which the NGM ANS Allocation is equal to or greater than [*] on which such committee, after a good faith effort, cannot reach consensus within a period of thirty (30) days, then either Party shall have the right to refer such issue for resolution to the Senior Executives, and if such Senior Executives are unable to resolve such issue after a period of ten (10) Business Days, then Merck shall have the final say with respect to such issue. In the event that the NGM ANS Allocation is less than [*] with respect to a given NGM Optioned Product then Merck shall have final say with respect to any issue before the JCC regarding such NGM Optioned Product and without any minimum discussion time at the JCC or need to escalate such matter.

2.11 **Authority**. Each Party shall retain the rights, powers and discretion granted to it under this Agreement and each committee under this Article 2 shall have solely the powers expressly assigned to it in this Article and elsewhere in this Agreement, and no committee shall have any power to amend, modify or waive compliance with this Agreement.

2.12 **NP201 Project Leaders**. Merck and NGM each shall appoint a person (a "**NP201 Project Leader**") to coordinate the Parties' activities across the NP201 Research Collaboration. The NP201 Project Leaders shall be the primary contact between the Parties with respect to the NP201 Research Collaboration. Each NP201 Project Leader shall thereafter be permitted to attend meetings of the Joint NP201 Committee, JEDC and JLDC as a nonvoting observer, subject to the confidentiality provisions of Article 10. Each Party shall notify the other within thirty (30) days of the Effective Date of the appointment of its NP201 Project Leader and shall notify the other Party as soon as practicable upon changing this appointment.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2.13 **Working Groups**. From time to time, the Parties or any committee may establish a working group (each, a "**Working Group**") to oversee particular projects or activities, which Working Groups may include: (a) an intellectual property Working Group (the "**IP Working Group**"); and/or (b) a finance Working Group (the "**Finance Working Group**"), which shall report to the Parties collectively. Any Working Group may be assigned upon approval of the Parties to report instead to a specific committee or more than one committee. Each Working Group shall undertake the activities allocated to it herein or delegated to it by the Parties, or the committee to which it reports. During the process of establishing each Working Group, such Working Group and the Parties or the committee to which it reports shall agree regarding which matters such Working Group will resolve on its own and which matters such Working Group will advise the Parties or the committee regarding (and with respect to which such advice-specific matters the Parties or committee will resolve); provided, however, that no Party or committee or any other Person designated with authority hereunder may delegate to a Working Group any decision-making authority over any matter that has been expressly allocated to a committee or such Person in this Agreement; and provided, further, that the Parties acknowledge and agree that each Working Group is intended to function primarily in a supporting role providing advice or information to the Parties or committee to which it reports, but that each Working Group will be best positioned to provide expedited guidance regarding certain operational matters as determined by and subject to the jurisdiction of the committee to which such Working Group reports or to the Parties. Any dispute arising within a Working Group shall be referred to the Parties directly or to the committee to which it reports for resolution, as applicable.

2.14 **Alliance Managers**. Each Party shall appoint an employee who shall oversee interactions between the Parties for all matters related to this Agreement and any related agreements between the Parties or their Affiliates (each an "**Alliance Manager**"). Such persons shall endeavor to assure clear and responsive communication between the Parties and the effective exchange of information, and may serve as a single point of contact for any matters arising under this Agreement. The Alliance Managers shall have the right to attend all committee and Working Group meetings as non-voting participants and may bring to the attention of the committee and Working Group any matters or issues either of them reasonably believes should be discussed, and shall have such other responsibilities as the Parties may mutually agree in writing. Each Party may designate different Alliance Managers by notice in writing to the other Party.

ARTICLE 3
NP201 PROGRAM; LICENSES

3.1 **License Grants under NP201 Program**.

3.1.1 Licenses by NGM.

(a) NGM hereby grants to Merck an exclusive (even as to NGM, except to the extent required for NGM to perform its obligations under the NP201 Research Plan) royalty-bearing license (subject to Section 9.6), under the NP201 IP, and NGM's interest in any Collaboration Technology, with the right to grant and authorize sublicenses in accordance with Section 3.1.1(d), to: (i) research, Develop, use and manufacture (including making and having made) NP201 Compounds and NP201 Products in the Field in the Territory, including pursuant to the NP201

Research Plan; and (ii) Commercialize (including selling, offering for sale, importing and exporting) NP201 Compounds and NP201 Products in the Field in the Territory. Without limiting the foregoing, solely with respect to Merck's performance of the NP201 Research Collaboration, NGM hereby grants to Merck a non-exclusive, royalty-free license, under any and all Patent Rights and Know-How that are Controlled by NGM or any of its Affiliates (subject to Section 14.3), solely for Merck to conduct the NP201 Research Collaboration during the NP201 Research Term.

(b) Subject to the remainder of this Section 3.1.1(b), NGM hereby grants Merck a non-exclusive, royalty-free license under all Know-How and Patent Rights that NGM or any of its Affiliates (subject to Section 14.3) Control and is related to the activities under this clause, and NGM's interest in any Collaboration Technology, with the right to grant and authorize sublicenses in accordance with Section 3.1.1(d), to use the Provided NP319 Antagonists for purposes of researching, Developing, using and manufacturing (including making and having made) NP201 Compounds in the Field in the Territory. This license does not include any rights to develop or commercialize any Provided NP319 Antagonists. To assist Merck in its research and development of NP201 Compounds, NGM will [*]. Merck shall [*], and Merck shall not [*] without the prior written consent of NGM. Merck shall not sell, transfer, disclose or otherwise provide access to [*] without the prior written consent of NGM, except that [*]; provided, however, that [*]. Merck shall [*].

(c) In the event that the use, manufacturing (including making and having made) or Commercialization (including selling, offering for sale, importing and exporting) by Merck, of a particular NP201 Compound or NP201 Product (in each case in the form in which such NP201 Compound or NP201 Product was provided by NGM to Merck pursuant to this Agreement) in the Field in the Territory pursuant to this Agreement, would infringe during the Term a claim of an issued Patent Right that is Controlled by NGM or its Affiliates (subject to Section 14.3) and that is not covered by the grant in Section 3.1.1(a), NGM hereby grants, and NGM shall cause its Affiliates (subject to Section 14.3) to grant, to Merck, subject to the terms and conditions of this Agreement and subject to any exclusive license grants to Third Parties (which license grants occurred prior to initiation of the first Phase 2 Clinical Trial of the relevant NP201 Compound or NP201 Product) a non-exclusive, with the right to grant and authorize sublicenses in accordance with Section 3.1.1(d), royalty-free license in the Territory during the Term under such issued Patent Right use, manufacture (including making and having made) and Commercialize (including sell, offer for sale, import and export) such NP201 Compound or NP201 Product in the Field in the Territory.

(d) Merck may grant sublicenses of the licenses under Sections 3.1.1(a), (b) and (c) to any Affiliate at any time; provided, however, in the case of a sublicense of the license under Section 3.1.1(c) that such Affiliate has a received sublicense of the license under Section 3.1.1(a) in accordance with this Section 3.1.1(d) with respect to the applicable NP201 Compound or NP201 Product. Merck may grant sublicenses of the license under Sections 3.1.1(a), (b) and (c) to a Third Party; provided, however, that: (i) each such sublicense is in writing and is consistent with the applicable terms of this Agreement; (ii) each such sublicense terminates upon the earlier of the termination of the NP201 Program or termination of

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this Agreement; (iii) in the case of a sublicense of the license under Section 3.1.1(b) that such Third Party is solely permitted to use the Provided NP319 Antagonists to research, Develop, use or manufacture (including making and having made) NP201 Compounds or NP201 Products on behalf of Merck; and (iv) in the case of a sublicense of the license under Section 3.1.1(c) that such Third Party has a received sublicense of the license under Section 3.1.1(a) in accordance with this Section 3.1.1(d) with respect to the applicable NP201 Compound or NP201 Product. Notwithstanding the foregoing, and solely with respect to an NP201 Product that has been the subject of an NGM ANS Option, Merck shall notify NGM in writing prior to entering into material discussions with any Third Party regarding Merck granting a sublicense that would constitute the entirety of the license contained in Section 3.1.1 with respect to such NP201 Product in the US or worldwide (*i.e.*, a sublicense of all research, Development, use, manufacturing (including making and having made) and Commercialization (including sell, offer for sale, import and export) rights in the US or throughout the world and in all Indications), and Merck may only grant such a sublicense thirty (30) or more days after such notice and only to a Third Party that is commercially qualified to Develop and Commercialize human therapeutic products.

3.1.2 *Licenses by Merck.* During the NP201 Research Term, Merck hereby grants to NGM a non-exclusive, royalty-free license, under the Merck IP, solely for NGM to conduct its obligations under the NP201 Research Plan with respect to NP201 Compounds. NGM may grant sublicenses of the license set forth in this Section 3.1.2 to Third Parties who are acting on NGM's behalf in the conduct of activities under the NP201 Research Plan, without the prior written consent of Merck, but not a single sublicense of the entirety of such license to a single Third Party, which single sublicense would require the prior written consent of Merck, which consent will not be unreasonably withheld, conditioned or delayed; provided, however, that: (i) each such sublicense is in writing and is consistent with the applicable terms of this Agreement; (ii) each such sublicense terminates upon the earlier of the termination of the NP201 Program or termination of this Agreement; and (iii) each sublicense solely permits the use of the sublicensed Merck IP within the scope of the license granted by Merck pursuant to this Section 3.1.2. For the avoidance of doubt: (a) the license set forth in this Section 3.1.2 does not include any right to manufacture or sell products to Third Parties; and (b) NGM may not use the Merck IP as licensed under this Section 3.1.2 other than to perform its responsibilities under the NP201 Research Plan during the NP201 Research Term with respect to NP201 Compounds.

3.1.3 *Negative Covenant; No Implied Licenses*.

(a) Each Party covenants that it will not knowingly use or practice any of the other Party's intellectual property rights licensed to it under this Section 3.1 except for the purposes expressly permitted in the applicable license grant. Except as specifically set forth in this Agreement, neither Party shall acquire any license or other intellectual property interest, by implication or otherwise, in any Information disclosed to it under this Agreement or under any Know-How or patents or patent applications owned or Controlled by the other Party or its Affiliates.

(b) NGM covenants that it will not: (i) take any action that would cause a lien, charge or encumbrance of NP201 IP or NGM's interest in any Collaboration Technology; or (ii) assign, transfer, convey or otherwise grant to any Person: (a) any rights to any NP201 IP or NGM's interest in any Collaboration Technology (or any

rights to any intellectual property that would otherwise be included in the NP201 IP or NGM's interest in any Collaboration Technology but for such action resulting in the loss of Control of such intellectual property rights), in any manner that is inconsistent with the exclusive licenses granted to Merck pursuant to Section 3.1.1(a); or (b) any rights to any NP201 Compounds or NP201 Products that are inconsistent with the exclusive licenses granted to Merck pursuant to Section 3.1.1(a).

(c) Merck covenants that it will not take any action that would cause a lien, charge or encumbrance of Merck's interest in any Collaboration Technology during the Term with respect to the applicable NP201 Compound(s) or NP201 Product(s).

3.2 Conduct of NP201 Research Collaboration.

3.2.1 *Purpose and Term.* The Parties have agreed to engage in the NP201 Research Collaboration on the terms and conditions set forth in this Agreement and as directed by the Joint NP201 Committee and in accordance with the NP201 Research Plan. Under the NP201 Research Collaboration: (i) NGM will be primarily responsible for conducting all IND-enabling studies on NGM386 and NGM395, with IND-enabling activities being transferred to Merck, to the extent approved by the Joint NP201 Committee, in a manner that does not slow the NP201 Program; (ii) NGM and Merck shall identify additional candidates selected for the initiation of IND-enabling studies ("**NP201 Development Candidates**"); (iii) NGM and Merck shall compile the IND package for NP201 Development Candidates; and (iv) Merck will conduct early Clinical Studies on such NP201 Development Candidates, all as and to the extent specified by the Joint NP201 Committee pursuant to the NP201 Research Plan; and (v) NGM shall conduct further research and screening for the discovery and/or identification of NP201 Compounds or advance the characterization and optimization of NP201 Compounds, with the goal of selecting additional NP201 Development Candidates. The activities to be undertaken in the course of the NP201 Research Collaboration are set forth in the NP201 Research Plan, which may be amended from time to time upon mutual written agreement by authorized representative(s) of the Parties acting through the Joint NP201 Committee. The NP201 Research Collaboration will be undertaken and performed solely during the NP201 Research Term. For clarity, once a NP201 Compound completes a POC Trial, the JLDC (pursuant to Section 2.7) or the JCC (pursuant to Section 2.10), as and to the extent applicable, shall oversee activities hereunder relating to such NP201 Compound and such NP201 Compound shall no longer be subject to the NP201 Research Plan.

3.2.2 *Performance; Funding.* Each Party shall use its respective Commercially Reasonable Efforts to perform the activities allocated to it pursuant to the NP201 Research Plan in accordance with the terms of this Agreement. Merck will perform, at its own cost and expense, any activities for which it is responsible under the NP201 Research Plan. NGM will perform the activities for which it is responsible under the NP201 Research Plan using the Research Funding outlined in Section 4.2. Subject to the foregoing and the terms and conditions of this Agreement (including compliance with the NP201 Research Plan), each Party (and not the Joint NP201 Committee) shall be responsible for managing its own research efforts within the scope of the activities allocated to it pursuant to the NP201 Research Plan and making decisions with respect to its day-to-day conduct in support of such research efforts.

3.3 Governance by Joint NP201 Committee; Budgets. The Joint NP201 Committee shall have

general oversight of the NP201 Research Collaboration as set forth and in accordance with Section 2.4. Without limiting the foregoing, the Joint NP201 Committee shall set, in compliance with the other provisions of this Agreement, as part of the Research Funding Budget, a budget for each Calendar Year or portion thereof during the NP201 Research Collaboration, which will include External Costs (in accordance with, and subject to, Section 4.2.3), and FTE funding for NGM's activities (in accordance with, and subject to, Section 4.2.2) under the NP201 Research Collaboration. The Joint NP201 Committee shall have only the powers expressly assigned to it in this Section 3.3 and elsewhere in this Agreement, and shall not have any power to amend, modify, or waive compliance with this Agreement.

3.4 **Exchange of Information**. Upon the Effective Date, and on an ongoing basis during the NP201 Research Term, each Party shall, to the extent applicable, promptly disclose to the other any Collaboration Inventions, and NGM shall disclose to Merck in English and in writing or in an electronic format all NP201 IP not previously disclosed, and Merck shall disclose to NGM in English and in writing or in an electronic format all Merck Know How that is necessary for NGM to perform the NP201 Research Collaboration and that has not been previously disclosed.

3.5 **Development, Manufacture and Commercialization of NP201 Compounds and Products**.

3.5.1 *Generally*. All later Development, manufacturing and Commercialization activities for NP201 Compounds and NP201 Products hereunder shall be Merck's sole responsibility and at Merck's own expense, subject to the NGM ANS Option and Co-Detailing Option under Article 7. For clarity, the NGM ANS Option and Co-Detailing Option shall apply to each NP201 Product.

3.5.2 *Diligence.* NGM understands and acknowledges that Merck does not seek to market its products in each and every country of the Territory and may not seek to Develop and/or Commercialize NP201 Products in every country of the Territory; provided, however, that Merck shall use Commercially Reasonable Efforts during the Term to seek Marketing Authorization [*] and to Commercialize [*] following receipt of Marketing Authorization of such NP201 Product [*], including the Co-Detailing of any NP201 Product as to which NGM has exercised the NGM ANS Option in such countries in the Co-Detailing Territory with NGM as and to the extent NGM exercises its Co-Detailing Option and in accordance with the terms of the Co-Detailing Agreement. NGM acknowledges that Merck's obligations pursuant to this Section 3.5.2 may be satisfied by in whole or in part by Related Parties or permitted assignees (which assignees shall be deemed to be Merck for all purposes of this Agreement).

3.5.3 *Discontinuation.* Notwithstanding Section 3.5.2, if Merck (and its Affiliates and sublicensees) [*], Merck shall notify NGM in writing and the Parties shall discuss in good faith for a period of thirty (30) days the status of such NP201 Products, [*]

3.5.4 *Governance by JLDC and JCC*. To the extent NGM exercises the NGM ANS Option, the JLDC or JCC, as applicable, shall oversee and facilitate the conduct of Development and Commercialization of the applicable NP201 Compound and NP201 Product, as set forth in Article 2.

3.6 **Exclusive Efforts for NP201 Program**. Subject to Section 14.4.1, during the NP201 Research Term and the [*] period immediately following the end of the NP201 Research Term but terminating upon any termination of this Agreement in its entirety or with respect to the NP201 Program, the Parties and their Affiliates shall work together exclusively on the research,

development and commercialization of antibodies, peptides, large molecules and small molecule compounds that activate or agonize NP319 alone or together with its co-receptor(s) at the Activity Threshold, and neither Party or its Affiliates shall conduct any research, development or commercialization, whether independently or with or through an Affiliate or Third Party, that is directed to any antibody, peptide or other large molecule, or small molecule, that is known, believed or intended to activate or agonize NP319 alone or together with its co-receptor(s) at the Activity Threshold, except pursuant to this Agreement.

3.7 **Records and Reports**. In the event NGM elects not to participate in either the JLDC or JCC with respect to NP201 Compounds or NP201 Products, as applicable, and Merck takes on Clinical Studies for any NP201 Compound or NP201 Product, Merck shall provide NGM with a written annual development and commercialization plan that includes a high level summary of Merck's development and Commercialization efforts, with respect to such NP201 Compounds and NP201 Products (each, a "**Report**") by October 31st of each Calendar Year. At the request of NGM within thirty (30) days of NGM's receipt of the Report, the Parties will meet to discuss the Report.

ARTICLE 4
RESEARCH PROGRAM AND CONDUCT OF EARLY DEVELOPMENT

4.1 **Conduct of Research Program**.

4.1.1 *Purpose.* NGM shall conduct the Research Program to identify and amplify the biological role of targets other than Excluded Targets with potential utility in various therapeutic areas, consistent with its objectives set forth in Section 2.3, based on NGM's existing approach to biology-centric drug discovery and research, and with the objective of identifying, researching and developing, through a POC Trial, multiple Research Program Development Candidates, subject to the Research Funding FTE Budget. NGM shall have primary responsibility for the conduct of the Research Program, including scientific, pre-clinical, pre-POC CMC, clinical and regulatory activities. At NGM's request or as provided in Section 4.1.7, Merck may contribute to IND-enabling and pre-POC activities upon agreement by the JRC or JEDC. The activities to be undertaken in the course of the Research Program shall be reported to the JRC and JEDC, as applicable, at each meeting of the same and each Party shall otherwise provide updates from time-to-time between such meetings as the other Party may reasonably request. NGM shall consider in good faith all inputs from Merck, including from Merck's members on the JRC and JEDC, as applicable, with respect to such activities. The Research Program will be undertaken and performed solely during the Research Program Term, except as set forth in Section 4.4 with respect to any Tail Period.

4.1.2 *Initial Research Program Term.* The Research Program shall commence as soon as practicable after the Effective Date and shall run for an initial term of five (5) years from the Effective Date (the "**Initial Research Program Term**"). The Research Program will expire at the end of the Initial Research Program Term unless: (i) the Research Program is extended in accordance with Section 4.1.3; (ii) the Research Program enters the Tail Period in accordance with Section 4.4; or (iii) the Research Program is terminated early in accordance with Section 13.4.

4.1.3 *Extension Options*. At its sole option, and in its sole discretion, Merck shall have the right and option to extend the Research Program for a period of two (2) years commencing on the date of the expiration of the Initial Research Program Term (the "**First Extension Period**") and, if exercised, Merck would have an additional right and option to extend

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the First Extension Period for an additional period of two (2) years from the date of the expiration of the First Extension Period (the "**Second Extension Period**"). To exercise either of such options, Merck shall so notify NGM, in writing, by no later than twelve (12) months prior to the expiration of the Initial Research Program Term or the First Extension Period, as the case may be, and make the extension payment set forth in Section 9.1 (the Initial Research Program Term, as may be extended by the First Extension Period and the Second Extension Period, are referred to collectively as the "**Research Program Term**").

4.1.4 *Performance.* NGM shall act in good faith [*] to perform the activities under the Research Program, using the funding provided by Merck hereunder, as set forth in Section 4.2, and with the objective of identifying multiple Collaboration Compounds and Research Program Development Candidates over the course of the Full Research Program Term for development through a POC Trial, to enable Merck to exercise the Merck Option therefor, in its sole discretion. NGM shall dedicate to the Research Program appropriate resources and allocate personnel with an appropriate level of education, experience and training in identifying, researching and developing Collaboration Targets and Collaboration Compounds in order to achieve the objectives of the Research Program efficiently and expeditiously, which resources and personnel shall be consistent with the level of funding provided by Merck.

4.1.5 *NGM's Responsibilities*. Without limiting the foregoing, during the Full Research Program Term, NGM shall, subject to Section 4.1.7:

(a) conduct research activities leading to the selection of Collaboration Targets, including identification, characterization and validation;

(b) optimize proteins, peptides or antibodies against their respective Collaboration Targets to ensure that resulting Collaboration Compounds are viable candidates for future pre-clinical activities and Clinical Studies;

(c) conduct activities related to engineering, modification, expression, production, and purification of Collaboration Compounds, including peptides, recombinant proteins and antibodies;

(d) conduct pre-clinical activities, including pharmacodynamics, pharmacokinetic and safety assessments, and Clinical Studies, up to and including the first POC Trial for each Research Program Development Candidate chosen for advancement, as deemed necessary or desirable by NGM with input from the JRC and JEDC;

(e) conduct process and formulation development of Research Program Development Candidates as deemed appropriate by NGM with input from the JRC and JEDC;

(f) have the right and responsibility to manufacture, or have manufactured, Research Program Development Candidates prior to Merck's exercise of the Merck Option with respect thereto, including all required bulk drug substance and clinical materials, consistent with NGM's reasonable internal practices, industry standards and all Laws. NGM will conduct any POC Trial with bulk drug substance the manufacture of which shall be in accordance with all Laws including GMP, it being understood, however that such drug substance will in most cases not be the commercial formulation of such Development Compound. Notwithstanding the foregoing, any contractors that NGM intends on using for the manufacture of GMP material must be audited and approved by Merck prior to performing any Collaboration Activities;

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(g) develop biomarker and other assays it determines to be useful or desirable for the Research Program Development Candidates and/or the potential Products, as deemed appropriate by NGM with input from the JRC and JEDC;

(h) keep Merck informed, including through regular JRC and JEDC meetings during the Full Research Program Term, of all progress being made by NGM with respect to Research Program Development Candidates, at key junctures along the development path, such as Research Program Development Candidate nomination, IND filing and the like, as well as general progress made for all other Collaboration Compounds;

(i) [*]

(j) be responsible for preparing and filing all regulatory filings for Research Program Development Candidates, including all INDs, up through conduct of the POC Trial, all of which shall be in the name of NGM; and

(k) make available to Merck its reasonable requirements of Collaboration Targets and other reagents for use in its internal small molecule development activities under Article 6, if and to the extent available and in NGM's possession.

4.1.6 *Use of Subcontractors.* NGM shall be entitled to utilize the services of any Affiliates and Third Parties to perform discrete elements of its Research Program activities; provided, however, that it shall: (i) remain at all times fully liable for its responsibilities under the Research Program and shall ensure that each Affiliate and subcontractor complies with the terms and conditions of this Agreement; and (ii) ensure that NGM is the owner of (with the unfettered right to license to Merck hereunder and without any further consideration) any intellectual property rights or materials (*e.g.*, a cell line) developed or used by any such Affiliate or Third Party service provider. Notwithstanding the foregoing, any contractors that NGM intends on using for the manufacture of GMP material must be audited and approved by Merck prior to performing any Collaboration Activities.

4.1.7 *[*]*. In the event that NGM has exceeded the Research Funding Budget for a given Research Program Year, or it is reasonably anticipated that NGM will exceed the Research Funding Budget for a given Research Program Year, it shall notify Merck through the JRC and/or JEDC, as applicable, and where at least one Research Program Development Candidate has been nominated under the Research Program, [*], in accordance with this Section 4.1.7, [*] or [*]; provided, however, that [*], in accordance with [*] and/or [*] (subject in all cases to [*]). To the extent that [*], and [*], which will be [*], or, if [*], or [*], and [*], as and to the extent set forth in Section [*].

4.1.8 *Licenses.*

(a) By Merck. Merck hereby grants to NGM a non-exclusive, royalty-free license, under the Merck IP, solely for NGM to conduct the Research Program during the Research Program Term and to research, Develop and use Tail Compounds/Targets during the Tail Period. NGM may, with Merck's prior written consent, grant sublicenses of the license set forth in this Section

4.1.8 to Affiliates, and to Third Parties who are acting on NGM's behalf in the conduct of activities under the Research Program or with respect to Tail Compounds/Targets, but not a single sublicense of the entirety of such license to a single Third Party, which single sublicense would require the prior written consent of Merck; provided, however, that: (A) each such sublicense is in writing and is consistent with the applicable terms of this Agreement; (B) each such sublicense terminates upon the earlier of the termination of the Tail Period or termination of this Agreement; and (C) each sublicense solely permits the use of the sublicensed Merck IP within the scope of the license granted by Merck pursuant to this Section 4.1.8(a). For the avoidance of doubt: (i) the license set forth in this Section 4.1.8(a) does not include any right to manufacture or sell products to Third Parties; and (ii) NGM may not use the Merck IP as licensed under this Section 4.1.8(a) other than to perform the Research Program during the Research Program Term and to research, Develop and use Tail Compounds/Targets during the Tail Period.

(b) By NGM. NGM hereby grants to Merck a non-exclusive, royalty-free license, under any and all Patent Rights and Know-How that are Controlled by NGM or any of its Affiliates (subject to Section 14.3), solely for Merck to conduct such activities as may be undertaken by it pursuant to Section 4.1.7 or otherwise as requested by NGM and agreed to by Merck under the Research Program during the Research Program Term and to research, Develop and use Tail Compounds/Targets during the Tail Period, in each case as and to the extent specified in this Article 4. Merck may, with NGM's prior written consent, grant sublicenses of the license set forth in this Section 4.1.8(b) to Third Parties who are acting on Merck's behalf in the conduct of activities under the Research Program or with respect to Tail Compounds/Targets; provided, however, that: (A) each such sublicense is in writing and is consistent with the applicable terms of this Agreement; (B) each such sublicense terminates upon the termination of this Agreement; and (C) each sublicense solely permits the use of such sublicensed Patent Rights and Know-How within the scope of the license granted by NGM pursuant to this Section 4.1.8(b). For the avoidance of doubt: (i) the license set forth in this Section 4.1.8(b) does not include any right to manufacture or sell products to Third Parties; and (ii) Merck may not use the NGM intellectual property rights licensed under this Section 4.1.8(b) other than to perform the Research Program during the Research Program Term and to research, Develop and use Tail Compounds/Targets during the Tail Period.

4.2 NGM FTEs, Merck funding of NGM FTEs and NGM's Out-of-Pocket Expenses.

4.2.1 *NGM FTEs.* During the Full Research Program Term, NGM shall, in its sole discretion, assign the appropriate number of FTEs to conduct NGM's activities under the Research Program and NP201 Research Collaboration; provided, however, that if NGM chooses in its discretion to provide staffing that exceeds the Research Funding Budget Merck will not be obligated to pay for those NGM FTEs that exceed such Research Funding Budget.

4.2.2 *Minimum FTE Support.* Merck will provide NGM with the Research Funding, and NGM agrees to apply at least [*] of such Research Funding during each Research Program Year to pay for costs and expenses associated with the NGM FTE's performance of the Research Program and NP201 Research Collaboration.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.2.3 *FTE and External Cost Funding; Annual Budgets; True Up*.

(a) NGM shall provide to Merck, not later than [*] prior to the start of each Research Program Year, a rolling annual budget, for the subsequent two (2) Research Program Years, of its projected FTE funding requirements and projected Third Party costs (including costs for consultants) and other out-of-pocket expenses incurred by it in the conduct of the Research Program and NP201 Research Collaboration, subject to Section 4.2.4 (the "**External Costs**") for each such year, with the first year's budget of such Research Program Years constituting the fixed budget for such year (such year's budget the "**Research Funding Budget**"); provided, however, that in no event shall the Research Funding Budget for any Research Program Year be in excess of the applicable cap set forth below, which such cap may only be revised upon mutual written agreement of the Parties ("**Research Funding Cap**"):

FUNDING YEAR	AMOUNT OF PAYMENT
Research Program Year 1 through 5	$ 50,000,000

(b) NGM will keep true, accurate and complete records of its FTE work and External Costs incurred under the Research Program. Upon the request of Merck, NGM will permit Merck or its independent certified accountants of nationally recognized standing, to have access during ordinary business hours to such of NGM's records as may be necessary to reasonably substantiate the accuracy of NGM's FTE efforts under the Research Program.

(c) During the Research Program Term, Merck shall make payments to NGM [*], in an amount equal to [*] ([*] and all such amounts, collectively, the "**Research Funding**"). For clarity, Research Funding shall include funding for NGM FTEs conducting all elements of the Research Program and NP201 Research Collaboration, including Early Development activities, pre-POC CMC and regulatory activities, subject to the requirements of Section 4.2.2.

(d) Within [*] days of the end of [*], NGM shall provide to Merck an accounting of the number of FTEs actually deployed in the conduct of the Research Program and NP201 Research Collaboration during such [*], multiplied by the FTE Rate, and a determination of the variance of such actual FTE costs from the [*] Research Funding provided for such [*] by Merck (the "**FTE True Up Report**"), and shall provide to Merck an accounting of the amount of actual External Costs incurred by NGM during such Calendar Quarter, including appropriate supporting evidence (*e.g.*, copies of receipts) for amounts in excess of [*], and a determination of the variance of such actually incurred External Costs from [*] provided for such [*] by Merck (the "**External Costs True Up Report**"). [*] Merck shall have the right to deduct such positive variance amount from the next scheduled Quarterly Research Funding amount unless the Parties had previously agreed to such positive variance prior to NGM incurring such additional costs, or, where there is no such further [*] amount owed to NGM, NGM shall repay to Merck such positive variance amount within sixty (60) days of the date of such True Up Report.

(e) Funding of FTE's and External Costs during the First Extension Period or

the Second Extension Period shall be at such levels as is mutually agreed upon by the Parties in writing, but shall be on similar business terms and payment mechanism as described above in this Section 4.2.2. Such agreement on funding of FTE's for the First Extension Period and Second Extension Period, as applicable, shall include a budget cap of at least [*] and no greater than [*] of the Research Funding for Research Program Year 5. NGM shall not be required to conduct any research or development activities during any such First Extension Period or Second Extension Period until such funding levels are agreed.

(f) NGM shall apply the Research Funding it receives under this Agreement solely to carry out its activities under, and in accordance with the NP201 Research Plan or in furtherance of the Research Program, and, in each case, in accordance with the terms and conditions of this Agreement. NGM covenants that it shall not use any Research Funding obtained from Merck to fund any internal or external costs associated with its activities under any of the Existing Collaboration Agreements and/or to research or develop any Retained Compounds or Retained Targets.

4.2.4 *External Costs*. "External Costs" shall include [*] to be used solely (or if applicable to other uses, then a fair allocation of such costs) in the conduct of the Research Program or NP201 Research Collaboration; provided, however, that Merck's approval shall be obtained in writing in advance for such External Costs that are in excess of [*] for any such [*]; provided, further, that Merck shall not be responsible for [*]. For clarity, any External Costs that are: (i) approved by Merck under this Section 4.2.4, shall be included in the Research Funding Budget and shall, accordingly, be subject to, and count against, the Research Funding Cap; or (ii) not approved by Merck under this Section 4.2.4 (as and to the extent such approval is necessary), shall not be included in the Research Funding Budget, shall not count against the Research Funding Cap and NGM shall be solely responsible for any such costs.

4.2.5 *Expense Reduction.* The Parties agree to cooperate during the Research Program Term in identifying and implementing opportunities to reduce the costs incurred in the conduct of the Research Program, including costs of equipment, consumables such as laboratory supplies and Third Party services such as toxicology, clinical studies or manufacturing services, provided such cooperation does not unduly delay or hamper NGM in the performance of its activities thereunder. These attempts may include exploration of Merck's preferred supply arrangements, and Merck's procurement expertise.

4.2.6 *Records; Audits*. NGM will keep, and will cause each of its Affiliates and subcontractors, as applicable, to keep, adequate books and records of accounting of all FTEs, FTE spend and out-of-pocket expenses for the Collaboration for the purpose of ensuring its compliance hereunder. For the [*] following the end of the Calendar Year to which such books and records of accounting (including those of its Affiliates, as applicable) relate will be kept at its principal place of business. At the request of Merck, NGM will permit (and procure its Affiliates, to permit) an independent certified public accounting firm of internationally recognized standing selected by Merck and reasonably acceptable to NGM to have access during normal business hours to such of the records as may be reasonably necessary to verify the accuracy of the payments due hereunder from Merck in connection with FTEs and out-of-pocket expenses for any Calendar Year ending not more than [*] following the end of any Calendar Year. Such examinations may not be conducted more than once in any Calendar Year or be repeated for any Calendar Year. The accounting firm shall disclose to Merck only whether the reports are correct or incorrect and the

amount of any discrepancy. No other Confidential Information shall be provided. If such accounting firm correctly identifies a discrepancy made during such period, the appropriate Party shall pay the other Party the amount of the discrepancy within thirty (30) days of the date of delivery of such accounting firm's written report so correctly concluding, or as otherwise agreed upon by the Parties. The fees charged by such accounting firm shall be paid by Merck; provided, however, that if the overcharge by NGM exceeds [*], then NGM shall pay the fees. Upon the expiration of [*] following the end of any Calendar Year, absent willful misconduct or fraud by NGM (or its Affiliates, as applicable) the calculation of amounts payable with respect to such Calendar Year shall be binding and conclusive upon Merck, and NGM shall be released from any liability or accountability with respect to amounts payable for such Calendar Year. Merck shall treat all financial information subject to review under this Section in accordance with the confidentiality and non-use provisions of this Agreement, and shall cause its accounting firm to enter into an acceptable confidentiality agreement with NGM obligating it to retain all such Confidential Information in confidence pursuant to such confidentiality agreement.

4.2.7 *Potential Increases to the Research Funding Cap*. In accordance with Section 4.1.7, in the event that NGM has exceeded or anticipates exceeding the Research Funding Budget for a given Research Program Year, and where at least one Research Program Development Candidate has been nominated under the Research Program, Merck shall increase the Research Funding Budget solely for the purpose of performing those IND-enabling or later staged activities for the relevant Research Program Year for all Research Program Development Candidates during such Research Program Year by up to Twenty Five Million Dollars ($25,000,000) in the aggregate; provided, however, that, such Twenty Five Million Dollars ($25,000,000) amount shall be reduced each Research Program Year by an amount equal to the value of the activities that Merck performs, if any, in accordance with Section 4.1.7 (*e.g.*, reduced by the number of Merck FTEs engaged in such activities at the FTE Rate and reduced by out-of-pocket costs Merck incurs in connection therewith). In the event that Merck is unable or unwilling to undertake the relevant activities outlined in Section 4.1.7, such Twenty Five Million Dollars ($25,000,000) amount (less any reduction in connection with Merck's performance of activities outlined in Section 4.1.7) shall be allocated between FTE funding and the funding of External Costs as appropriate to reflect whether NGM is using its own FTEs to perform the relevant activity or a Third Party service provider; provided, however, that, for clarity, such Research Funding Budget shall not be automatically increased by such amounts, but rather shall be increased by the actual costs incurred in connection with the relevant activities, but in no event more than such Twenty Five Million Dollars ($25,000,000) amount (less any reduction in connection with Merck's performance of activities outlined in Section 4.1.7). Subject to the potential increase to the Research Funding Cap in accordance with this Section 4.2.7, the preceding sub-sections of this Section 4.2 shall continue in full force and effect with respect to accounting for and paying amounts owed and due under this Section 4.2 from Merck to NGM. Notwithstanding the foregoing, access to any such amounts shall be subject to discussion before the JEDC.

4.3 **Early Development Matters**. The following shall pertain to NGM's Early Development activities under the Research Program:

4.3.1 *Reports.* NGM shall provide to the JEDC reasonable progress and spending updates at each Calendar Quarter meeting of the JEDC on the status of such Early Development activities, including summaries of data, summaries of the actual and anticipated areas of spending and expenses, and the likelihood of, and timetable for, completion of such Early Development activities and advancement of Research Program Development Candidates to the next phase of Development.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.3.2 *Ownership of Regulatory Filings*.

(a) NGM shall own and maintain all regulatory filings for Research Program Development Candidates made by it and developed pursuant to this Agreement, including all INDs. NGM shall provide the JEDC with regular updates regarding the status of regulatory filings and correspondences for Research Program Development Candidates, and such regulatory filings and correspondences shall be reviewed by the JEDC or a working group established by such committee.

(b) Without limiting Section 5.5, upon exercise of the Merck Option with respect to a Research Program Development Candidate, NGM shall transfer ownership of such regulatory filings for such Research Program Development Candidate, including all relevant INDs to Merck, and provide Merck with copies of or access to such INDs and other regulatory filings, and all pre-clinical and clinical data and results (including pharmacology, toxicology, formulation and stability studies).

4.3.3 *Adverse Event Reporting*. Beginning on the Effective Date and continuing until such time, if any, that Merck exercises the Merck Option with respect to a Research Program Development Candidate, NGM shall be responsible for reporting all adverse drug reaction experiences related to the clinical activities of NGM under this Agreement to the appropriate Regulatory Authorities in the countries in the Territory in which the Research Program Development Candidate is being developed, in accordance with the Laws of the relevant countries and Regulatory Authorities. Without limiting the foregoing, upon Merck's request, NGM shall provide copies of any adverse event reports with respect to a Research Program Development Candidate and any details related thereto that Merck reasonably requests.

4.4 Research and Development during the Tail Period.

4.4.1 *Portfolio Review.* During the [*] period immediately prior to the last day of the Research Program Term (where either no extensions remain or Merck has not elected to extend the Research Program Term), Merck shall have the right to review with NGM the Collaboration Compounds then identified, and their associated Collaboration Targets, and determine if there are Collaboration Compounds for which Merck desires NGM to continue to conduct research and development, including, where successful, through POC (the "**Tail Compounds/Targets**") over the ensuing three (3) years immediately following the final year of the Research Program Term (each, a "**Tail Year**"). Merck shall have the right to require NGM to conduct such additional research and development of such Tail Compounds/Targets, subject to the limits set forth in Section 4.4.2. Notwithstanding the foregoing, Merck may terminate the Tail Period or any particular Tail Year upon [*] written notice to NGM, in which case NGM shall be responsible, at Merck's expense, upon Merck's election in writing, for transitioning any Clinical Studies then-being conducted to Merck or its designee, in which event the terms and conditions (including each Party's rights and obligations) of Sections 13.6.2(d) through (i), inclusive, shall apply to all such Tail Compounds, *mutatis mutandis*, subject only to transfers and the like being provided by NGM to Merck (and not by Merck to NGM), or, where Merck does not so elect to have transitioned to it any such Clinical Studies, NGM shall be responsible for an orderly wind-down, in accordance with accepted pharmaceutical industry norms and ethical practices, of any such Clinical Studies or continuing any such Clinical Studies, at

its own expense, and the applicable Collaboration Compounds shall become Non-Qualifying Compounds. Where Merck assumes the conduct of such Clinical Studies but terminates Development of the applicable Collaboration Compounds prior to completion of the first POC Trial, such Collaboration Compounds shall become Non-Qualifying Compounds. Where Merck assumes the conduct of such Clinical Studies, upon completion of the first POC Trial with respect to any Tail Compound, the Merck Option would remain in effect and be exercisable as set forth in Article 5, as though NGM had conducted such POC Trial, except that no Data Package shall be due from NGM with respect to such POC Trial, and Merck shall be required to exercise the Merck Option in the same timeframe as provided in Section 5.3.1, with such [*] period commencing once Merck has available to it the same information as would have been contained in the Data Package for such POC Compound. In addition, to the extent then-ongoing, all research activities that are not Clinical Studies under the Tail Period shall terminate, effective upon such effective date of termination, and in any event Merck shall have no obligation to pay for any External Costs or such work performed by the NGM FTEs after the effective date of such termination including the Research Funding after such date with respect thereto, and the licenses and rights granted by Merck to NGM in Section 4.1.8(a) will terminate and such licenses and rights shall revert to Merck and NGM and its Affiliates and sublicensees shall have no further rights to use any such Merck IP as contemplated by Section 4.1.8(a), except to the extent needed to conduct the activities set forth above in this Section 4.4.1.

4.4.2 *Conduct of Research and Development During Tail Period; Merck Retained Options*.

(a) NGM shall conduct the additional research and development of Tail Compounds/Targets as requested by Merck pursuant to Section 4.4.1 and in a manner consistent with this Article 4; provided, however, that Merck shall fund all such activity in the manner consistent with the funding of FTEs and out of pocket costs (including External Costs, to the extent applicable) set forth in Section 4.2, and provided, further, unless otherwise agreed to by the Parties, that such additional research and development effort and activities shall not exceed a total research and development commitment by NGM (as measured by the total annual budget for both FTEs and External Costs) in excess of: (a) for Tail Year 1, [*] of the actual amount funded for FTEs and External Costs in the last year of the Research Program Term (exclusive of any amounts paid under Section 4.2.7); (b) for Tail Year 2, [*] of the actual amount funded for FTEs and External Costs in the last year of the Research Program Term (exclusive of any amounts paid under Section 4.2.7); and (c) for Tail Year 3, [*] of the actual amount funded for FTEs and External Costs in the last year of the Research Program Term (exclusive of any amounts paid under Section 4.2.7).

(b) Notwithstanding Section 4.4.2(a), if, during any Tail Year or after the Tail Period, Merck desires to assume responsibility for such research and development activities with respect to one or more Tail Compounds/Targets that have yet to reach POC, Merck shall have the right to internally research and develop such Tail Compounds/Targets by providing NGM with written notice of such intent at the time of Merck's request pursuant to Section 4.4.1 or at any time during the Tail Period; provided, that, promptly following Merck's provision of such notice, the Parties shall agree regarding a reasonable transition plan with respect to any such Tail Compounds/Targets (which plan will account for the NGM staffing at the relevant time(s)). Any Tail Compound that undergoes a POC Trial either during the Tail Period or thereafter arising from Merck's continued internal

research and development of that Tail Compound would be subject to a Merck Option to obtain an exclusive license to such POC Compound and its Related Compounds, all in accordance with the process outlined in Article 5, as though NGM had conducted such POC Trial, except that no Data Package shall be due from NGM with respect to such POC Trial, and Merck shall be required to exercise the Merck Option in the same timeframe as provided in Section 5.3.1, with such [*] period commencing once Merck has available to it the same information as would have been contained in the Data Package for such POC Compound. In furtherance of the foregoing, NGM hereby grants to Merck an exclusive (even as to NGM, except to the extent required for NGM to perform its obligations under the Collaboration) royalty-free, sublicenseable, license, under the NGM IP, and NGM's interest in any Collaboration Technology, to research, develop (through completion of a POC Trial), make, have made and use Tail Compounds/Targets that Merck chooses to transfer the further research and development thereof to Merck in accordance with this Section 4.4.2(b). For clarity, no post-POC development rights or commercial rights would be granted to Merck with respect to any Tail Compounds or their associated Collaboration Targets (even if Merck is internally researching and developing such Tail Compounds/Targets) unless and until Merck exercises the applicable Merck Option upon review of the data resulting therefrom. In the event Merck elects, in its sole discretion, to discontinue prior to the conduct of a POC Trial any research or development of any Tail Compounds/Targets it has elected to pursue under this Section 4.4.2(b), such Tail Compounds/Targets would thereafter be deemed to be Non-Qualifying Compounds and Non-Qualifying Targets, as applicable, and NGM would have such rights thereto as are set forth in Section 4.4.3.

4.4.3 *Non-Qualifying Compounds/Targets.* Upon expiration of the Research Program Term, if no Tail Period exists, or upon expiration of the Tail Period, Merck's rights hereunder to all Collaboration Compounds that are not, as of such time, (1) Optioned Compounds (including, for clarity, all Related Compounds), or (2) as applicable, selected by Merck as Tail Compounds (including Research Program Development Candidates so selected) under Section 4.4.1 (the "**Non-Qualifying Compounds**"), and to all Collaboration Targets (other than Optioned Targets or Tail Targets) not Modulated by an Optioned Compound or Tail Compound (the "**Non-Qualifying Targets**", which Non-Qualifying Targets include Optioned Targets or Tail Targets to the extent Modulated by a different Modulation Category from the Modulation Category of the applicable Optioned Compound or Tail Compound), including all right to develop and commercialize such Non-Qualifying Compounds and Non-Qualifying Targets, either itself or with or through a Third Party, shall terminate and NGM shall have the right to develop and commercialize, independently or with or through Affiliates or Third Parties such Non-Qualifying Compounds and Non-Qualifying Targets without further obligation to Merck, except for a royalty due to Merck as set forth in Section 9.7 (subject to Section 4.8.3). Upon expiration of the Tail Period, any Tail Compounds/Targets that (i) have not been optioned by Merck in accordance with Article 5 (including such Tail Compounds as may be deemed to have been optioned by Merck by way of qualifying as a Related Compound to an Optioned Compound) or (ii) Merck is not using Commercially Reasonable Efforts to develop (other than through NGM) shall become Non-Qualifying Compounds and Non-Qualifying Targets, with rights to the same accruing to NGM as set forth above. Finally, if at any time after the expiration of the Tail Period Merck stops using Commercially Reasonable Efforts to research and Develop any Tail Compound, such Tail Compound/Target shall become a Non-Qualifying Compound and Non-Qualifying Target, with rights to the same accruing to NGM as set forth above.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

4.5 **Exclusivity During Research Program Term and Tail Period**. Subject to Section 14.4.2,

4.5.1 *Research Program Term.* During the Research Program Term, NGM and its Affiliates shall work exclusively with Merck on the research and development of antibodies, peptides, large molecule and small molecule compounds that Modulate Collaboration Targets in a manner that satisfies the applicable Physiologically Relevant Threshold, except for those Collaboration Targets as to which Merck has elected not to exercise the Merck Option (*i.e.*, those targets that are deemed to be Non-Qualifying Targets), and NGM and its Affiliates shall not during the Research Program Term conduct any research, development or commercialization, whether independently or with or through an Affiliate or Third Party (including through granting a license or otherwise enabling any such activities), that is directed to any such antibody, peptide or other large molecule, or small molecule, that Modulates a Collaboration Target in a manner that satisfies the applicable Physiologically Relevant Threshold, except pursuant to this Agreement.

4.5.2 *Tail Period*. During the Tail Period, NGM and its Affiliates will work exclusively with Merck on the Tail Compounds/Targets and on the research and development of antibodies, peptides, large molecule and small molecule compounds that Modulate Tail Targets, in a manner that satisfies the applicable Physiologically Relevant Threshold, except for those Tail Targets as to which Merck has elected not to exercise the Merck Option (*i.e.*, those targets that are deemed to be Non-Qualifying Targets), and NGM and its Affiliates shall not conduct any research, development or commercialization, whether independently or with or through an Affiliate or Third Party (including through granting a license or otherwise enabling any such activities) during the Tail Period, that is directed to any such antibody, peptide or other large molecule, or small molecule, except pursuant to this Agreement.

4.6 **Principal Investigator**. In the event that, during the Initial Research Program Term, the Principal Investigator is no longer in the employ of NGM (other than on account of his employment by Merck or any of its Affiliates), or is no longer directing research at NGM (a "**Significant Event**"), NGM shall promptly notify Merck in writing, and, no later than [*] following such notification, the Parties shall meet and discuss in good faith: (a) the anticipated effect of such Significant Event on the then-current status of the Research Program, taking into consideration the year of the Initial Research Program Term in which such Significant Event occurred, whether and to what extent Collaboration Compounds had progressed to Research Program Development Candidate status and/or were in POC Trials; and (b) NGM's designated successor to the Principal Investigator, including his or her views on the scientific direction of the Research Program and the like. Following such discussion, NGM shall have a period of [*] to provide Merck with a research plan that is satisfactory to Merck, and Merck agrees to meet and confer with NGM with respect to such research plan in good faith. If, upon review of such research plan, Merck nonetheless desires to terminate early the Research Program, the following shall apply: (i) if such Significant Event occurs prior to the [*], Merck would have the right to terminate the Research Program in its entirety, in accordance with Section 13.4.2; or (ii) if such Significant Event occurs on or after the [*], Merck would have the right to shift the focus of the Research Program to concentrate on the Development of Research Program Development Candidates through POC, but Merck would not have the right to terminate or otherwise alter the conduct of the Research Program.

4.7 **Exchange of Information**. Upon the Effective Date, and on an ongoing basis during the Full Research Program Term, each Party shall promptly disclose to the other any Collaboration

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Inventions, and NGM shall disclose to Merck in English and in writing or in an electronic format all NGM IP not previously disclosed, and Merck shall disclose to NGM in English and in writing or in an electronic format all Merck Know-How used in the Research Program and not previously disclosed.

4.8 Existing Collaboration Agreements; Partnered Compounds and Targets.

4.8.1 NGM shall not use any Research Funding obtained from Merck to fund any internal or external costs associated with its activities under any of the Existing Collaboration Agreements or any other non-Collaboration activities.

4.8.2 NGM shall not amend any Existing Collaboration Agreement, or grant its consent (where consent may be withheld by NGM) under any Existing Collaboration Agreement, in each case, in a manner that: (i) [*] or [*]; and/or (ii) [*] that [*] the Existing Collaboration Agreement; provided, however, that nothing in the foregoing shall require that NGM breach the terms of any of such Existing Collaboration Agreements.

4.8.3 If during the Research Term the rights of the Third Party Partner cease to exist in their entirety under the terms of the Existing Collaboration Agreement with respect to a Partnered Compound (as a result, for example, of the expiration or termination of such agreement, or any license or option thereunder), and if as of such time [*] such Partnered Compound, then such Partnered Compound shall [*] and such compound shall [*] and [*]; provided, however, that notwithstanding Section [*]: (a) if such compound subsequently [*], then the [*] on account of the [*] shall not [*]; and (b) if such compound subsequently [*], [*] on account of the [*].

4.8.4 If during the Research Term the rights of the Third Party Partner cease to exist in their entirety under the terms of the Existing Collaboration Agreement with respect to Partnered Target (as a result, for example, of the expiration or termination of such agreement, or any license or option thereunder) then the applicable DNA sequence, RNA sequence, protein or peptide shall no longer thereafter be deemed a "Partnered Target" and it shall instead be made available for possible designation and investigation as a Collaboration Target under the Research Program. NGM represents and warrants that the targets set forth on Schedule 1.36 are not Partnered Targets.

4.8.5 In no event will the subject matter that is "Within 3rd Party Rights" include any antibody, peptide or other large molecule or small molecule, DNA sequence or RNA sequence that is identified, discovered or reduced to practice, or otherwise researched or developed in the course of performing the Collaboration.

ARTICLE 5
MERCK OPTION RIGHTS

5.1 Data Package. Once a Collaboration Compound completes a POC Trial (and thus becomes a POC Compound), NGM shall, within [*] of such completion, provide a mutually agreed upon data package to Merck, which data package will in any event include: (i) [*]; (ii) [*]; (iii) [*]; (iv) [*]; (v) [*]; (vi) [*], in each case of (i) through (vi), inclusive, to the fullest extent reasonably possible so as to assist and enable Merck to make its decision on whether to exercise the Merck Option with respect thereto; and (vii) an executed statement affirming the representations and warranties in Sections 11.1 and 11.2 remain accurate or otherwise noting any disclosures necessary to make such representations and warranties accurate, which disclosures shall not be considered, of

themselves, to be a breach of this Agreement(the "**Data Package**"). NGM shall, during the Option Period for such POC Compound and, as requested by Merck, meet with Merck to discuss such Data Package and any questions of Merck with respect thereto, including providing Merck with such additional information to assist with interpretation of the Data Package as Merck may reasonably request.

5.2 Grant of Merck Options.

5.2.1 *Grant of Rights.* NGM hereby grants to Merck the exclusive right, exercisable at Merck's sole discretion, to elect to obtain the exclusive worldwide license set forth in Section 5.4 with respect to each POC Compound that has been the subject of completed a POC Trial, and its Related Compounds (which are, collectively, a set of Option Subject Compounds), under the terms and conditions set forth in this Agreement (each such right to elect, a "**Merck Option**" as to the applicable set of Option Subject Compounds). Each such POC Compound together with its associated Related Compounds are collectively referred to as one set of Optioned Subject Compounds, all of which are included within and subject to a single Merck Option, which option may be exercised by Merck (as provided in Section 5.3) at one time as to all such compounds in the set. For clarity, the exercise by Merck of a Merck Option with respect to a given set of Optioned Subject Compounds shall be specific to that particular set of Optioned Subject Compounds only and results in the grant to Merck of the exclusive, worldwide license, under Section 5.4.1, to research (as described in Section 5.4.1), Develop, manufacture, use and Commercialize any Product that incorporates any of such Optioned Subject Compounds. Any additional Collaboration Compounds that are developed subsequently (or in tandem) by NGM against the same Collaboration Target (other than the associated Related Compounds to a given POC Compound), but that belong to a different Modulation Category than such Optioned Compounds, and which progress to become a POC Compound that has been the subject of a completed POC Trial, shall be the subject of a separate and distinct Merck Option, which is then subject to separate exercise by Merck (as provided in Section 5.3).

5.2.2 *Pursuit of Related Compounds.* Upon exercise of a Merck Option to a POC Compound for a particular set of Option Subject Compounds, Merck shall also have the license set forth in Section 5.4.1 to research (as described in Section 5.4.1), Develop, manufacture, use and Commercialize the Related Compounds associated with such POC Compound. Following exercise of its Merck Option with respect to a set of Option Subject Compounds, Merck may, in its sole discretion, substitute any one or more of the Related Compounds within such set for the applicable POC Compound, or where the POC Compound is successful as a Product, may in addition, at Merck's sole discretion, Develop, manufacture, use and Commercialize any of the associated Related Compounds, subject to Merck's obligations under this Agreement.

5.2.3 *Exclusivity.* During the Full Research Program Term, NGM will not grant to any Third Party rights to any NGM (or its Affiliates) intellectual property that are inconsistent with or in way limit or restrict the options granted or the grant of the licenses resulting from the exercise of the Merck Options to Merck hereunder. For the avoidance of doubt, the Parties understand and agree that the Merck Option rights, as described herein, shall be exclusive options over the POC Compound that is the subject of a given Early Development program, and its Related Compounds, and unless and until such time (if any) as Merck declines to exercise or permits to lapse its pending or outstanding Merck Option rights with respect to any such POC Compound and Related Compounds, NGM shall not have the right to offer or negotiate with any Third Party with respect to the grant to such Third

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Party of any right or license or other encumbrance of any kind with respect to the NGM IP or NGM's interest in the Collaboration Technology in or to any of such compounds in the Field in the Territory (including intellectual property rights covering or claiming such compounds).

5.3 Exercise of Merck Option.

5.3.1 *Option Period, Option Exercise.* Merck may exercise a Merck Option by delivery to NGM of written notice of exercise, not later than [*] after receipt of the complete Data Package from NGM with respect to that Option Subject Compound, specifying the POC Compound as to which the Merck Option is being exercised. The [*] period during which the Merck Option must be exercised, as set forth herein, shall be referred to in this Agreement as the "**Option Period**." The Parties shall comply with Section 16.17.2 with respect to any Antitrust Approvals that may be necessary in connection with the exercise of a Merck Option; such compliance shall not extend the period for Merck to give notice of its desire to exercise the Merck Option but it may delay the effectiveness of such exercise. Upon exercise of a particular Merck Option, all Option Subject Compounds that are the subject of such Merck Option (*i.e.*, the POC Compound that is the subject of such Merck Option together with all its associated Related Compounds, whether identified or discovered before or after such Option Exercise) automatically become Optioned Compounds.

5.3.2 *Refused Candidates.* If Merck does not exercise its Merck Option with respect to a particular set of Option Subject Compounds within the applicable Option Period, subject to Section 5.3.3, then the Merck Option as to all compounds in such set of Option Subject Compounds shall expire and such compounds shall thereafter be "**Refused Candidates**", and NGM will thereafter be free to develop and commercialize, subject to Section 5.3.3, all such Refused Candidates (*i.e.*, the POC Compound that was the subject of such Merck Option and all of its associated Related Compounds), alone or with an Affiliate or Third Party, at its sole expense (as between the Parties), free of any obligation to Merck hereunder (except for royalties under Section 9.7 (subject to Section 4.8.3)).

5.3.3 *Technical Issues and Revival of Merck Option.* If Merck does not exercise its Merck Option with respect to a particular POC Compound due to the fact that, although such POC Compound completed the POC Trial, there existed Technical Issues, then Merck shall inform NGM in writing of such Technical Issues and, thereafter, if during the Full Research Program Term NGM elects to pursue (including resulting from discussions at the JRC) and completes another POC Trial with respect to such POC Compound, or completes a POC Trial with respect to a Related Compound to such failed POC Compound, or if such POC Compound or any such Related Compound is deemed to be a Tail Compound, then the Merck Option shall again be in full force and effect with respect to such POC Compound and/or Related Compound (and its Related Compounds), upon delivery of the Data Package, as set forth in Section 5.1. As used herein, "**Technical Issues**" means [*], including [*] or [*].

5.3.4 *Exercise following Expiration of the Research Term or Tail Period.* If upon the expiration of the Full Research Program Term, a Merck Option or any POC Trial is pending, Merck shall have the full [*] time period to exercise such Merck Option.

5.4 License Grants Upon Exercise of Merck Option.

5.4.1 *Grant.* On a Merck Option-by-Merck Option basis, and subject to the

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terms and conditions of this Agreement and effective only upon Merck's exercise of the Merck Option in accordance with Section 5.3 (provided that if Antitrust Approvals are required in connection with such exercise, then effective only upon receipt of such Antitrust Approvals), NGM shall be hereby deemed to have granted and hereby grants to Merck the exclusive, royalty-bearing right and license, with the right to grant sublicenses in accordance with Section 5.4.3, under all of NGM's rights, title and interest in and to the NGM IP, and NGM's interest in any Collaboration Technology, to research, Develop, use, manufacture (including making and having made) and Commercialize (including selling, offering for sale, importing and exporting) the Optioned Compounds and all Optioned Products that are the subject of each of such Merck Option, in the Field in the Territory; provided, however, that such right and license does not include any right or license to: (a) [*]; (b) [*]; or (c) [*].

5.4.2 *Unblocking License.* In the event that either the use, manufacturing (including making and having made) or Commercialization (including sell, offer for sale, import and export) by Merck of a particular Optioned Compound or Optioned Product (in each case in the form in which such Optioned Compound or Optioned Product was provided by NGM to Merck pursuant to this Agreement) in the Field in the Territory pursuant to this Agreement, would infringe during the Term a claim of an issued Patent Right which is Controlled by NGM or its Affiliates (subject to Section 14.3) and which is not covered by the grant in Section 5.4.1, NGM hereby grants, and NGM shall cause its Affiliates (subject to Section 14.3) to grant, to Merck, subject to the terms and conditions of this Agreement and subject to any exclusive license grants to Third Parties (which license grants occurred prior to initiation of the first Phase 2 Clinical Trial of the relevant Optioned Compound or Optioned Product), a non-exclusive, with the right to grant and authorize sublicenses in accordance with Section 5.4.3, royalty-free license in the Territory during the Term under such issued Patent Right for Merck and its Related Parties to use, manufacture (including the making and having made) or Commercialize (including selling, offering for sale, importing and exporting) Commercialize Optioned Compounds and Optioned Products in the Field in the Territory.

5.4.3 *Sublicense Rights.* Merck may grant sublicenses of the license under Sections 5.4.1 and 5.4.2 to any Affiliate at any time; provided, however, in the case of a sublicense of the license under Section 5.4.2 that such Affiliate has a received sublicense of the license under Section 5.4.1 in accordance with this Section 5.4.3 with respect to the applicable Optioned Compound or Optioned Product. Merck may grant sublicenses of the license under Sections 5.4.1 and 5.4.2 to a Third Party; provided, however, that: (1) each such sublicense is in writing and is consistent with the applicable terms of this Agreement (including, to the extent applicable, retaining NGM's Co-Detailing Option); (2) each such sublicense terminates upon the termination of this Agreement in its entirety or as it relates to the particular Optioned Products that are the subject of such sublicense; (3) in the case of a sublicense of the license under Section 5.4.2 that such Third Party has a received sublicense of the license under Section 5.4.1 in accordance with this Section 5.4.3 with respect to the applicable Optioned Compound or Optioned Product; and (4) solely with respect to an NGM Optioned Product, Merck shall notify NGM prior to entering into any material discussions with any Third Party regarding Merck granting a sublicense to such Third Party that would constitute the entirety of Merck's commercial rights under the license contained in Sections 5.4.1 and 5.4.2 with respect to such NGM Optioned Product in the US or worldwide (*i.e.*, a sublicense of all Commercialization rights in the US or throughout the world and in all Indications), and Merck may only grant such a sublicense [*] after such notice and [*].

5.4.4 *Covenant*. NGM covenants that it will not: (i) take any action that would cause a lien, charge or encumbrance of NGM IP or NGM's interest in any Collaboration Technology; or (ii) assign, transfer, convey or otherwise grant to any Person: (a) any rights to any NGM IP or NGM's interest in any Collaboration Technology (or any rights to any intellectual property that would otherwise be included in the NGM IP or NGM's interest in any Collaboration Technology but for such action resulting in the loss of Control of such intellectual property rights), in any manner that is inconsistent with the exclusive licenses granted to Merck pursuant to Section 5.4.1 or option rights granted to Merck hereunder; or (b) any rights to any Optioned Compounds or Optioned Products that are inconsistent with the exclusive licenses granted to Merck pursuant to Section 5.4.1.

5.5 **Transfer Following Option Exercise**. On an Optioned Product-by-Optioned Product basis, following Merck's exercise of the Merck Option with respect to each such Optioned Product:

(a) NGM shall transfer and assign to Merck or its designee all of the then existing INDs (if any) (together with a copy of all material documents submitted to the applicable Regulatory Authority in connection therewith for the Optioned Products), that relate to such Optioned Compound and/or Optioned Product, as applicable;

(b) NGM shall deliver to Merck copies of all clinical data and adverse event reports (including all such adverse event reports contained in NGM's or its Affiliates' regulatory and/or safety databases) in the same form in which NGM or its Affiliates maintains such data or reports, as applicable, in each case, relating to such Optioned Compounds or Optioned Products;

(c) NGM shall deliver to Merck, in the same form in which NGM maintains such items, copies of the material regulatory correspondence generated hereunder and owned by NGM or its Affiliates, which is in NGM's or its Affiliates' possession relating to the pre-clinical or clinical development of such Optioned Compounds or Optioned Products, as applicable;

(d) NGM shall, at Merck's request, deliver to Merck all inventory (if any, and to the extent applicable) of GMP and non-GMP Optioned Products and bulk Optioned Compounds in the forms currently residing, as of such notice of termination, in NGM's (or its Affiliates' or its CMO's) inventory that are not necessary for NGM to perform its obligations hereunder; provided, however, that Merck covenants that it shall not use any non-GMP Optioned Product and/or non-GMP Optioned Compound bulk in humans for any purpose; and

(e) NGM shall, at Merck's request, reasonably assist Merck in maintaining supply continuity for a reasonable period of time after Merck's exercise of the Merck Option in order to allow Merck to qualify and scale-up an alternative source of supply. Such assistance shall include, at Merck's request, the supply to Merck or its designee of GMP Optioned Products and Optioned Compounds and at a cost equal to NGM's fully allocated cost of goods sold, as consistently calculated, for such supplied Optioned Product or Optioned Compound (as applicable). Such assistance shall also include a paper manufacturing technology transfer in which NGM provides Merck or its designee with all documents and records, whether in paper or electronic form (and including all batch records, master batch records and SOPs) in NGM's or its Affiliate's or CMO's possession that are reasonably necessary to manufacture the Optioned Product and/or Optioned Compound according to the then current specifications.

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5.6 **Optioned Target Exclusivity**. Effective only upon exercise of the Merck Option and receipt of the Option Exercise Payment, NGM and its Affiliates (exclusive of an Acquiror and Affiliates of such Acquiror immediately prior to the Change of Control) shall not, itself or with any Affiliate or Third Party (including through granting a license or otherwise enabling any such activities), conduct any research, development (including pre-clinical studies and Clinical Studies), manufacturing or commercialization with respect to any compound that [*], for so long as Merck's license under Section 5.4.1 remains in effect with respect to such Optioned Compound.

5.7 **[*]**

ARTICLE 6
SMALL MOLECULE COLLABORATION PROGRAM

6.1 **License Grant by NGM**.

6.1.1 *Research License*. As of the Effective Date, NGM hereby grants to Merck with respect to a given Collaboration Target, an exclusive license (even as to NGM, except to the extent required for NGM to perform its obligations under the Collaboration) under the NGM IP, and NGM's interest in any Collaboration Technology related thereto, to research, Develop, discover and identify Small Molecule Collaboration Compounds and Small Molecule Products that Modulate such Collaboration Target, and to make, have made and use any such Small Molecule Collaboration Compounds and Small Molecule Products in the Territory, which such license shall: (a) remain an exclusive, royalty-free (even as to NGM, except to the extent required for NGM to perform its obligations under the Collaboration) license if such Collaboration Target becomes an Optioned Target; and (b) convert to a non-exclusive, royalty-free license, at such time, if any, as such Collaboration Target becomes a Non-Qualifying Target.

6.1.2 *Commercial License.* As of the Effective Date, NGM hereby grants to Merck an exclusive (even as to NGM, except to the extent required for NGM to perform its obligations under the Collaboration) royalty-bearing license (subject to Section 9.6), under the NGM IP , and NGM's interest in any Collaboration Technology, with the right to grant and authorize sublicenses in accordance with Section 6.1.4, to: (i) manufacture (including making and having made) Small Molecule Collaboration Compounds and Small Molecule Products researched, Developed, used, discovered or identified pursuant to the license set forth in Section 6.1.1, in the Territory; and (ii) manufacture (including making and having made), use and Commercialize (including selling, offering for sale, importing and exporting) such Small Molecule Collaboration Compounds and Small Molecule Products in the Field in the Territory.

6.1.3 *Unblocking License.* In the event that use, manufacturing (including making and having made) or Commercialization (including sell, offer for sale, import and export) by Merck, or Merck's Related Parties of a particular Small Molecule Collaboration Compound or Small Molecule Product in the Field in the Territory pursuant to this Agreement, would infringe during the Term a claim of an issued Patent Right which is Controlled by NGM or its Affiliates (subject to Section 14.3) and which is not covered by the grant in Section 6.1.1 or 6.1.2, NGM hereby grants, and NGM shall cause its Affiliates (subject to Section 14.3) to grant, to Merck, subject to the terms and conditions of this Agreement and subject

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to any exclusive license grants to Third Parties (which license grants occurred prior to initiation of the first Phase 2 Clinical Trial of the relevant Small Molecule Collaboration Compound or Small Molecule Product) a non-exclusive, with the right to grant and authorize sublicenses in accordance with Section 6.1.4, royalty-free license in the Territory during the Term under such issued Patent Right to use, manufacture (including making and having made) or Commercialize (including selling, offering for sale, importing and exporting) such Small Molecule Collaboration Compound in the Field in the Territory.

6.1.4 *Sublicenses.* Merck may grant sublicenses of the license under Sections 6.1.1, 6.1.2 and 6.1.3 to any Affiliate at any time; provided, however, in the case of a sublicense of the license under Section 6.1.3 that such Affiliate has a received sublicense of the license under Section 6.1.2 in accordance with this Section 6.1.4 with respect to the applicable Small Molecule Collaboration Compound. Merck may grant sublicenses of the license under Sections 6.1.1, 6.1.2 and 6.1.3 to a Third Party; provided, however, that: (1) each such sublicense is in writing and is consistent with the applicable terms of this Agreement; (2) each such sublicense terminates upon the termination of this Agreement as it relates to Small Molecule Collaboration Compounds and Small Molecule Products; (3) in the case of a sublicense of the license under Section 6.1.1 that such Third Party is solely permitted to perform research on behalf of Merck; and (4) in the case of a sublicense of the license under Section 6.1.3 that such Third Party has a received sublicense of the license under Section 6.1.2 in accordance with this Section 6.1.4 with respect to the applicable Small Molecule Collaboration Compound.

6.1.5 *Negative Covenant; No Implied Licenses*.

(a) Merck covenants that it will not knowingly use or practice any of NGM's intellectual property rights licensed to it under this Section 6.1, except for the purposes expressly permitted in the applicable license grant. Except as specifically set forth in this Agreement, neither Party shall acquire any license or other intellectual property interest, by implication or otherwise, in any Information disclosed to it under this Agreement or under any Know-How or patents or patent applications owned or Controlled by the other Party or its Affiliates.

(b) NGM covenants that it and its Affiliates will not: (i) take any action that would cause a lien, charge or encumbrance of NGM IP or NGM's or its Affiliate's interest in any Collaboration Technology; or (ii) assign, transfer, convey or otherwise grant to any Person: (a) any rights to any NGM IP or NGM's or its Affiliate's interest in any Collaboration Technology (or any rights to any intellectual property that would otherwise be included in the NGM IP or NGM's or its Affiliate's interest in any Collaboration Technology but for such action resulting in the loss of Control of such intellectual property rights), in any manner that is inconsistent with the exclusive licenses granted to Merck pursuant to Section 6.1.2, or the other licenses granted to Merck pursuant to Section 6.1.1; or (b) any rights to any Small Molecule Collaboration Compound or Small Molecule Product that are inconsistent with the exclusive licenses granted to Merck pursuant to Section 6.1.2, or the other licenses granted to Merck pursuant to Section 6.1.1.

6.2 Conduct of Small Molecule Collaboration Compound Program. During the Term, Merck will perform, at its discretion and at its own cost and expense, any and all activities for the research, Development, use, discovery, identification, manufacturing (including making and having made) and Commercialization (including sell, offer for sale, import and export) of Small Molecule Collaboration Compounds and Small Molecule Products.

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6.3 **No NGM Development or Commercialization Right**. The Parties acknowledge and agree that neither the NGM ANS Option nor the Co-Detailing Option set forth in Article 7 shall apply with respect to Small Molecule Collaboration Compounds or Small Molecule Products.

6.4 **Information Regarding Merck's Efforts**. The JRC shall serve as a forum for discussing the progress of any research being conducted by or on behalf of Merck with respect to any Small Molecule Collaboration Compounds, as set forth in Section 2.5. In addition, Merck will provide to NGM [*].

ARTICLE 7
COMMERCIALIZATION OF PRODUCTS; NGM OPTIONS

7.1 **Development and Manufacture of Products**. Merck, as between the Parties, shall have the sole (except to the extent allocated to NGM in the NP201 Research Plan) right for all Development and manufacture of NP201 Compounds and Optioned Compounds, subject to the NGM ANS Option.

7.2 **Commercialization of Products That Are Not NGM Optioned Products**. With respect to any Products as to which NGM has not exercised the NGM ANS Option, Merck shall have, as between the Parties, the sole right for Commercialization of such Products in the Field in the Territory.

7.3 **Commercialization of NGM Optioned Products**. Merck shall be solely responsible for Commercialization of NGM Optioned Products in the Field outside the Co-Detailing Territory, and Merck, as between the Parties, shall have the sole right for Commercialization of the NGM Optioned Product in the Field in the Co-Detailing Territory, subject to NGM's option to Co-Detail the NGM Optioned Product in the Co-Detailing Territory as set forth in this Article 7.

7.4 **Development and Commercial Diligence for Products**.

7.4.1 *Merck*. NGM understands and acknowledges that Merck does not seek to launch or continuously market and/or sell its products in each and every country of the Territory and may not launch or continuously market and/or sell to Develop and/or Commercialize Products in every country of the Territory; provided, however, that Merck shall use Commercially Reasonable Efforts during the Term to seek Marketing Authorization for [*] and to Commercialize [*] following receipt of Marketing Authorization of such Product [*], including the Co-Detailing of each NGM Optioned Product [*] in the Co-Detailing Territory with NGM as and to the extent NGM exercises its Co-Detailing Option and in accordance with the terms of the Co-Detailing Agreement. NGM acknowledges that Merck's obligations pursuant to this Section 7.4.1 may be satisfied by in whole or in part by Related Parties or permitted assignees.

7.4.2 *NGM*. If and to the extent NGM exercises its Co-Detailing Option with respect to an NGM Optioned Product, NGM shall [*] conduct such Co-Detailing, in accordance with this Agreement and the Co-Detailing Agreement.

7.5 **NGM ANS Option**. On a Product-by-Product basis (to the extent applicable), the following shall apply:

7.5.1 *Generally; Projected Budgets and Plans.* Not later than [*] prior to [*], Merck shall provide to NGM: (a) [*]; and (b) [*]. NGM shall have the right to review and comment upon such [*], which Merck may update at its discretion based on such feedback, and NGM shall have the option (the "**NGM ANS Option**"), subject to Section 7.5.6, upon written notice delivered within [*] following receipt of the final iteration of such [*], which Merck shall identify as such when delivered to NGM (the "**Baseline Projected Plans and Budgets**"), to elect to co-fund a portion, to be [*] no greater than fifty percent (50%), of the worldwide Development Costs and Allowable Expenses for such Product (such elected percentage, the "**NGM ANS Allocation**"), in exchange for a share of the Adjusted Net Sales for such Product, at a percentage equal to the NGM ANS Allocation; provided, however, that, in the event of a Competing Pharma Change of Control, NGM (or its Acquiror or other successor in interest) shall only be permitted thereafter to exercise the NGM ANS Option at the [*], which NGM ANS Options shall remain subject to Section 7.5.6. For clarity, the Parties understand that the NGM ANS Option under this Agreement shall not apply to any Small Molecule Collaboration Compounds or Small Molecule Products. NGM acknowledges and agrees that the Baseline Projected Plans and Budgets (*i.e.*, the Product Development Plan and Budget and the Global Commercialization Plan) are estimates only and subject to revision in accordance with the terms and conditions of this Agreement.

7.5.2 *Advanced Amounts.* If NGM elects to exercise the NGM ANS Option, then, notwithstanding Section 7.5.1, and regardless of the level of NGM ANS Allocation elected by NGM, Merck would advance to NGM and/or absorb on behalf of NGM an amount equal to [*] of the total of the Development Costs and Allowable Expenses (the "**Advanced Amounts**"), which would be carried forward and recouped by Merck out of NGM's share of future Adjusted Net Sales from such Product as well as NGM's share of future Adjusted Net Sales from any and all other Products as to which NGM has exercised the NGM ANS Option; provided, however, that such Advanced Amounts are subject to an aggregate cap of [*] across all NGM Optioned Products, unless otherwise agreed by the Parties. All Advanced Amounts shall be subject to an interest rate of [*], and such accrued interest shall be considered part of the "Advanced Amounts" for purposes of this Agreement, except that such interest amounts shall not be included when determining whether the Advanced Amount cap set forth in the foregoing sentence has been met. Should NGM exercise the NGM ANS Option and elect an NGM ANS Allocation that is more than [*] (such amount over [*], the "**Self-Funded Allocation Amount**"), NGM would be solely responsible for funding such Self-Funded Allocation Amount of Development Costs and Allowable Expenses, as applicable. For example, if NGM exercises the NGM ANS Option and elects an NGM ANS Allocation Amount of [*], Merck would advance and/or absorb an amount equal to [*] and NGM would fund directly [*] of the total Development Costs and Allowable Expenses for such NGM Optioned Product. NGM would have the right to prepay any Advanced Amounts at any time, including prior to First Commercial Sale of the applicable NGM Optioned Product.

7.5.3 *Opting-In to Amended Development Plans and Budgets over the Baseline.*

(a) Merck has the right to update the Baseline Projected Plans and Budgets in its discretion, provided that such update shall be discussed and reviewed at the next occurring JLDC (with respect to the Product Development Plan and Budget) and/or JCC (with respect to the Global Commercialization Plan) meeting, as appropriate. In the event that the Development Costs or Allowable Expenses associated with such amended Product Development Plan and Budget and/or Global Commercialization Plan are more than [*] over the amount set forth in the Baseline Projected Plans and Budget or any then-current Revised Baseline

Plans and Budget (such overage amount, the "**Baseline Budget Overage**"), following such discussion at such committee (and regardless of whether NGM's representatives on such JLDC or JCC, as applicable, approve such proposed updated Product Development Plan and Budget), NGM shall have a period of [*] days in which to determine and to reasonably request such additional information from Merck as it requires in order to determine, whether it elects to: (i) continue to co-fund such Baseline Budget Overage at the same NGM ANS Allocation level; (ii) co-fund such Baseline Budget Overage at a lesser level [*]; or (iii) not co-fund any portion of such Baseline Budget Overage. In the event that NGM, in its sole discretion, agrees pursuant to clause (i) or (ii) above to co-fund such Baseline Budget Overage, then such Product Development Plan and Budget and/or Global Commercialization Plan, as applicable, shall henceforth be deemed, collectively, the "**Revised Baseline Projected Plans and Budgets**." In the event that NGM does not elect to co-fund any such Baseline Budget Overage under clause (iii) above, or in the event of any portion of the Baseline Budget Overage that NGM elects not to co-fund under clause (ii) above, then Merck shall pay and/or absorb all such amounts (such amounts in either case, "**Unpaid Costs**"); provided, however, that, for clarity, NGM shall be responsible (as part of the Self-Funded Allocation Amount) for all amounts that are within [*] of the Baseline Projected Plans and Budgets or then-current Revised Baseline Projected Plans and Budgets, as applicable.

(b) In the event that there are Unpaid Costs associated with a given NGM Optioned Product, the NGM ANS Allocation for such NGM Optioned Product (and NGM's share of Development Costs and Allowable Expenses going forward thereafter) shall be reduced at the time of First Commercial Sale, and thereafter once per Calendar Year on or about the anniversary of the Effective Date, by replacing the NGM ANS Allocation with [*], where:

(i) [*]; and

(ii) [*];

with the resulting percentage being the NGM ANS Allocation to be in effect until the next such calculation; provided, however, that this Section 7.5.3, and the Unpaid Costs concept, shall only apply with respect to amendments to Baseline Projected Plans and Budgets or then-current Revised Baseline Projected Plans and Budgets (*i.e.*, amendments that NGM has not opted to co-fund, or has opted to ramp down on co-funding with respect to a given Baseline Budget Overage, under Section 7.5.3(a)) and NGM shall remain solely responsible for funding all Self-Funded Allocation Amounts (without limiting the Advanced Amount concept described in Section 7.5.2) described in the Baseline Projected Plans and Budgets or then-current Revised Baseline Projected Plans and Budgets, as the case may be.

7.5.4 *Payment of Development Costs.* In the event NGM exercises the NGM ANS Option with respect to a given Product, within [*] days following the end of each Calendar Quarter during the Term, Merck shall deliver to NGM a written report (each, a "**Development Costs Report**") setting forth in detail, with supporting documentation for out of pocket costs in excess of [*], the Development Costs incurred by it (or its Affiliates) in such Calendar Quarter with respect to such NGM Optioned Product, by activity. The Development Costs Report shall also include any Development Costs incurred by

Merck (or its Affiliates) in any of the preceding Calendar Quarters that were not previously included and accounted for in a prior Development Costs Reports. To the extent there are any applicable Self-Funded Allocation Amounts, NGM shall pay to Merck its share, based upon the NGM ANS Allocation, of undisputed Development Costs within [*] days of its receipt of the Development Costs Report, subject to Section 7.5.3 and Section 7.5.5.

7.5.5 *Sharing of Adjusted Net Sales.*

(a) In the event NGM exercises the NGM ANS Option with respect to a given Product, NGM shall receive an amount equal to the NGM ANS Allocation of all Adjusted Net Sales, subject to the calculations described in this Section 7.5.5 to account for Advanced Amounts, the unpaid Self-Funded Allocation Amounts of any Development Costs owed pursuant to Section 7.5.4, if any ("**Outstanding Development Payments**"), and the Allowable Expenses incurred by both Parties.

(b) Within thirty (30) days after the end of each Calendar Quarter, each Party shall submit to the other Party a statement setting forth the Allowable Expenses, if any, it (or its Affiliates) incurred in such Calendar Quarter in connection with such NGM Optioned Product, or any Allowable Expenses incurred by such Party (or its Affiliates) in any of the preceding Calendar Quarters that were not previously included and accounted for in a prior Allowable Expense statement.

(c) Commencing with the First Commercial Sale of any such NGM Optioned Product, in each Calendar Quarter Merck shall notify NGM of any negative Adjusted Net Sales within forty-five (45) days after the end of such Calendar Quarter and: (i) if the Allowable Expenses incurred by NGM for such Calendar Quarter in connection with such NGM Optioned Product are less than its share of such negative Adjusted Net Sales in connection with such NGM Optioned Product, NGM shall pay the difference between the Allowable Expenses incurred by NGM and the NGM ANS Allocation of such negative Adjusted Net Sales within sixty (60) days after the end of such Calendar Quarter; provided, however, that to the extent NGM has not used up the entirety of the Advanced Amounts available to it, then the amounts under this clause (c) can count as part of the Advanced Amounts, if any (the aggregate of all such Advanced Amounts, including the amounts pursuant to this clause (c) and the Advanced Amounts advanced and/or absorbed by Merck under Section 7.5.2 in the context of Development Costs, the "**Total Deferred Costs**"); and (ii) if the Allowable Expenses incurred by NGM for such Calendar Quarter in connection with such NGM Optioned Product exceed its share of negative Adjusted Net Sales, Merck shall pay the difference between Merck's share of the Allowable Expenses incurred by NGM and the NGM ANS Allocation of such negative Adjusted Net Sales, less any Outstanding Development Payments, within sixty (60) days after the end of such Calendar Quarter.

(d) For each Calendar Quarter in which Adjusted Net Sales in connection with such NGM Optioned Product is positive, Merck shall pay NGM the NGM ANS Allocation of such amounts plus Merck's share of the Allowable Expenses incurred by NGM in such Calendar Quarter to the extent not covered by the positive portion of the NGM ANS Allocation, less deduction for any Total Deferred Costs and/or Outstanding Development Payments, to NGM within sixty (60) days after the end of such Calendar Quarter. Sharing of Adjusted Net Sales shall extend under this Agreement for so long as such NGM Optioned Product is sold in the Territory, whether by Merck, its Affiliates, sublicensees or successors in interest.

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7.5.6 *NGM ANS Allocation and Option Cap*. Notwithstanding the foregoing, or anything to the contrary herein, NGM's right to exercise the NGM ANS Option shall be limited as set forth in this Section 7.5.6. If, at the point in time when the NGM ANS Option becomes exercisable under Section 7.5.1 with respect to a particular Product, the sum of: (a) the Self-Funded Allocation Amounts actually incurred by NGM across all NGM Optioned Products as of such time; plus (b) the projected Self-Funded Allocation Amounts set forth in the Baseline Projected Plans and Budgets or the then-current Revised Baseline Projected Plans and Budgets, as the case may be, for NGM Optioned Products; plus (c) the Self-Funded Allocation Amount that NGM desires to elect with respect to such Product as set forth in the Baseline Projected Plans and Budgets for such Product as to which the NGM ANS Option has become exercisable, equal more than a total of: (x) [*] if Merck has not exercised either of its options under Section 4.1.3 with respect to the First Extension Period and the Second Extension Period; or (y) [*] if Merck has exercised its option under Section 4.1.3 with respect to the First Extension Period but not with respect to the Second Extension Period; or (z) [*] if Merck has exercised both its options under Section 4.1.3 with respect to both the First Extension Period and to the Second Extension Period (as applicable, the "**NGM ANS Option Cap**"), then NGM shall not have the right to exercise the NGM ANS Option with respect to such Product (or any Products thereafter unless and until, as determined at the time any subsequent NGM ANS Option shall have otherwise become exercisable, the sum of the amounts set forth in items (a), (b) and (c) above do not equal or exceed the NGM ANS Option Cap). With respect to any Product(s) as to which NGM is unable to exercise the NGM ANS Option pursuant to this Section 7.5.6, such Products would be subject to the payment by Merck of the milestones and royalties set forth in Article 9. For clarity, with respect to any NGM Optioned Products existing as of the time that the NGM ANS Option Cap is reached, NGM shall have the right to continue sharing in Development Costs, Allowable Expenses and Adjusted Net Sales with respect to such NGM Optioned Products in accordance with the NGM ANS Allocation applicable to each such NGM Optioned Product at such time, regardless of the actual Self-Funded Allocation Amounts actually incurred by NGM in connection therewith.

7.6 Commercialization Plans for NGM Optioned Products.

7.6.1 *Initial Global Commercialization Plan*. For each NGM Optioned Product, an initial Global Commercialization Plan shall be prepared by Merck and submitted to the JCC for review and approval no later than [*] days prior to [*].

7.6.2 *Updated Global Commercialization Plan*. Not later than [*] of each Calendar Year, Merck shall submit to the JCC for review and approval an updated Global Commercialization Plan for the following Calendar Year, which the JCC shall approve no later than [*] of such Calendar Year and attach to the minutes of the meeting of the JCC at which such Global Commercialization Plan or any amendment, modification or update is approved by the JCC. The Global Commercialization Plan will also include an estimated budget detailing the estimated Allowable Expenses for the Product in the Territory for such Calendar Year.

7.6.3 *Merck Control*. For clarity, pursuant to Section 2.10.8, Merck shall have final decision-making authority regarding any disputes in the JCC with respect to the Global Commercialization Plan, provided, however, that Merck will consider in good faith any issues or comments provided by NGM with respect to the Global Commercialization Plan at the JCC meeting at which such plan is reviewed.

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7.7 **Commercialization Responsibilities for NGM Optioned Products.** Subject to NGM's rights in the event of exercise of its Co-Detailing Option and as specified in the Co-Detailing Agreement, and consistent with the Global Commercialization Plan, Merck will be solely responsible for all strategic and tactical planning and execution of Commercialization of NGM Optioned Products in the Territory, including the conduct of all pre-marketing, marketing, promotion, sales, distribution, import and export activities (including securing reimbursement, sales and marketing and conducting any post-marketing trials or post-marketing safety surveillance or maintaining databases).

7.7.1 Merck shall have all rights to determine pricing, reimbursement, discounting and other aspects of the sales of NGM Optioned Products in the Territory, at its sole discretion.

7.7.2 NGM's representatives on the JCC shall receive a copy of the Global Commercialization Plan in connection with their participation in the JCC and in sufficient time to review such plan prior to the JCC meeting to approve such plan.

7.7.3 Merck shall book all sales of the NGM Optioned Product in the Territory.

7.7.4 Unless and until NGM elects to exercise its Co-Detailing Option, Merck shall, as between the Parties, be solely responsible for the promotion and detailing of the NGM Product in the Co-Detailing Territory. At all times, as between the Parties, Merck shall be responsible for all other aspects of the Commercialization of the NGM Optioned Product in the Co-Detailing Territory.

7.7.5 Without limiting the foregoing, Merck shall be responsible, as between the Parties, for the conduct of all sales, distribution, import and export activities for NGM Optioned Products (including securing reimbursement, and conducting any post-marketing trials or post-marketing safety surveillance, or maintaining databases).

7.7.6 Merck shall ensure that the plans and reports and information prepared by Merck for consideration and comment by the JCC are sufficiently detailed in order to enable NGM, acting reasonably, to provide meaningful input with respect thereto.

7.8 **Co-Detailing Option.**

7.8.1 *Overview.* Subject to the terms and conditions of this Agreement and as specifically set forth in this Section 7.8, NGM (itself or through its Affiliate) shall have the option to Co-Detail the Product with Merck in the Co-Detailing Territory following First Commercial Sale of the Product in the Co-Detailing Territory. Such Co-Detailing shall be conducted pursuant to the Co-Detailing Agreement, to be entered into by the Parties as set forth in Section 7.8.4.

7.8.2 *Grant of Option.* NGM, either itself or through an Affiliate, shall have the option to Co-Detail each NGM Optioned Product through its own sales force in the Co-Detailing Territory in accordance with this Section 7.8.2 (the "**Co-Detailing Option**") and the Co-Detailing Agreement. Upon exercise by NGM, NGM may elect to provide up to twenty-five percent (25%) of the total requisite details for the NGM Optioned Product in the Co-Detailing Territory, as further set forth in Schedule 7.8.4; provided, however, that, in any event, NGM shall provide no less than [*] representatives. The term of such Co-Detailing shall extend for so long as Merck is actively detailing the NGM Optioned Product in the Co-Detailing Territory and the Co-Detailing Agreement remains in effect.

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7.8.3 *Exercise of the Co-Detailing Option.* NGM may exercise the Co-Detailing Option, on an NGM Optioned Product-by-NGM Optioned Product basis, at its sole discretion, by written notice given to Merck within [*] following [*] with respect to such NGM Optioned Product. To better enable NGM to determine whether or not to exercise the Co-Detailing Option with respect to a given NGM Optioned Product, no later than [*] following [*] with respect to such NGM Optioned Product for such NGM Optioned Product in the Co-Detailing Territory, Merck shall provide to NGM (including through meetings of the JLDC and/or JCC, as and to the extent applicable), Merck's non-binding projected Allowable Expenses, including Selling Expenses, and associated initial Target Call List (as defined and described in Schedule 7.8.4) for such NGM Optioned Product through the second year post launch.

7.8.4 *Negotiation, Execution and Delivery of Co-Detailing Agreement.* On an NGM Optioned Product-by NGM Optioned Product basis, promptly following exercise by NGM of its Co-Detailing Option with respect to such NGM Optioned Product, the Parties shall commence the negotiation in good faith of an agreement containing the complete terms and conditions of such Co-Detailing based upon the terms and conditions specified in this Section 7.8.4 and Schedule 7.8.4 and other customary and appropriate terms and conditions, and enter into a mutually acceptable definitive written agreement therefor (each a, and collectively the, "**Co-Detailing Agreement**"). The Parties shall negotiate each Co-Detailing Agreement in good faith and with sufficient diligence as is required to execute and deliver such Co-Detailing Agreement no later than [*] after notice of exercise of the applicable Co-Detailing Option. In the event the Parties fail to execute and deliver such Co-Detailing Agreement prior to the expiration of such [*] period, the [*] of Merck (or the equivalent position) and the Chief Executive Officer (or his designee) of NGM shall meet and negotiate such Co-Detailing Agreement in good faith. For the avoidance of doubt, the inability of the Parties to execute and deliver such Co-Detailing Agreement prior to the expiration of such [*] period shall not cause NGM to lose the applicable Co-Detailing Option; provided, however, that, [*] or [*]. For clarity, nothing in this Section 7.8.4 shall limit the ability of the Parties to negotiate the terms and conditions of the Co-Detailing Agreement at any time, including prior to NGM's exercise of a Co-Detailing Option; provided, however, that, the Parties shall not execute, and NGM shall have no Detailing rights, until such time as NGM exercises a Co-Detailing Option.

7.8.5 *Co-Detailing Costs.* Each Party will bear the Selling Expenses it incurs in connection with its own field sales force, which such Selling Expenses shall be Allowable Expenses in the calculation of Adjusted Net Sales.

7.8.6 *Other Commercialization Activities.* At all times, as between the Parties, Merck shall be the responsible Party for all aspects of the Commercialization of the NGM Optioned Product in the Co-Detailing Territory other than Co-Detailing.

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ARTICLE 8
GENERAL RESEARCH AND DEVELOPMENT REQUIREMENTS; COMPLIANCE WITH LAWS

8.1 Records and Inspection Rights.

8.1.1 *Records.* NGM shall maintain records, in sufficient detail and in good scientific manner appropriate for patent and regulatory purposes, which shall fully and properly reflect all work done and results achieved in the performance of the Research Program and the NP201 Research Collaboration.

8.1.2 *Copies and Inspection of Records*. Merck shall have the right, not more than once per Calendar Year, during normal business hours and upon reasonable notice, to inspect all such records of NGM referred to in Section 8.1.1; provided, however, that such once annual limitation shall not apply with respect to any subsequent "for cause" audit. Merck shall maintain such records and the information disclosed therein in confidence in accordance with Article 10.

8.1.3 *Data Integrity*. NGM agrees that it shall carry out all Research Program and NP201 Research Collaboration activities and collect and record any data generated therefrom in a manner consistent with the requirements below:

(a) Data will be generated using sound scientific techniques and processes;

(b) Data will be accurately recorded in accordance with good scientific practices by persons conducting research hereunder;

(c) Data will be analyzed appropriately without bias in accordance with good scientific practices; and

(d) Data and results will be stored securely and can be easily retrieved.

8.1.4 *Inspections by Governmental Authority*. If any Regulatory Authority conducts or gives notice to a Party (or any of its Affiliate's or subcontractor's performing Collaboration activities) of its intent to conduct an inspection or audit at such Party's, or any of its Affiliate's or subcontractor's, facility(ies) in which the Collaboration is being conducted or to take any other regulatory action with respect to any of such Party's, or any of its Affiliate's or subcontractor's, Collaboration activities, such Party shall promptly notify the other Party prior to and promptly following complying with such a demand or request. Such inspected or audited Party agrees to promptly inform the other Party of the issuance of any FDA Form 483 or any equivalent regulatory action by any other Regulatory Authority concerning any aspect of the Collaboration. Notwithstanding the foregoing, the provisions of this Section 8.1.4 shall only apply to facilities of Merck (or its Affiliates or subcontractors) to the extent the inspection relates to Collaboration activities or NGM Optioned Products.

8.2 Compliance with Law and Ethical Business Practices.

8.2.1 NGM shall conduct the Research Program and the NP201 Research Collaboration and perform its obligations and exercise its rights under this Agreement in accordance with all Laws including, solely if applicable, all current governmental regulatory requirements concerning Good Laboratory Practices and Good Manufacturing Practices. NGM shall notify Merck in writing of any deviations from such applicable regulatory or legal requirements. NGM certifies that it will not and has not employed or otherwise used in any capacity the services of any person or entity debarred under Section 21 USC 335a in performing any research, development or commercialization activities hereunder. NGM shall notify Merck in writing immediately if any such debarment occurs or comes

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to its attention, and shall, with respect to any person or entity so debarred, promptly remove such person or entity from performing any research, function or capacity related to the Research Program or NP201 Research Collaboration.

8.2.2 NGM acknowledges that Merck's corporate policy requires that its business must be conducted within the letter and spirit of the law. By signing this Agreement, NGM agrees to conduct the services contemplated herein in a manner that is consistent with both Law and good business ethics.

8.2.3 NGM shall not make any payment, either directly or indirectly, of money or other assets (hereinafter collectively referred as a "**Payment**"), to government or political party officials, officials of international public organizations, candidates for public office or representatives of other businesses or persons acting on behalf of any of the foregoing (hereinafter collectively referred as "**Officials**") where such Payment would constitute violation of any law. In addition regardless of legality, NGM shall not make any Payment either directly or indirectly to Officials if such Payment is for the purpose of influencing decisions or actions with respect to the subject matter of this Agreement or any other aspect of NGM's business.

8.2.4 NGM certifies to Merck that as of the date of this Agreement NGM has screened itself, and its officers and directors, against the Exclusions Lists and it has informed Merck whether NGM or any of its officers of directs has been in Violation. After the execution of this Agreement, NGM shall notify Merck in writing immediately if any such Violation occurs or comes to its attention.

8.2.5 Each Party acknowledges that no employee of the other Party or its Affiliates shall have authority to give any direction, either written or oral, relating to the making of any commitment by such Party or its agents to any Third Party in violation of terms of this or any other provisions of this Agreement.

8.2.6 Each Party shall hold in confidence all data that identifies or could be used to identify an individual ("**Personal Data**"), except as required or permitted under this Agreement, or to the extent necessary to be disclosed to Regulatory Authority. In addition, each Party shall comply with all Laws with respect to the collection, use, storage, and disclosure of any Personal Data, including the U.S. Health Insurance Portability and Accountability Act (HIPAA) and the regulations promulgated thereunder. Each Party agrees to ensure that all appropriate technical and organization measures are taken to protect Personal Data against loss, misuse, and any unauthorized, accidental, or unlawful access, disclosure, alteration, or destruction, including without limitation, implementation and enforcement of administrative, technical, and physical security policies and procedures applicable to Personal Data. Merck and its Affiliates may use Personal Data received from NGM to create data sets that contain dates, ages, towns, cities, states and zip codes related to individuals ("**Research Data Sets**"), and may use and disclose the Research Data Sets, alone or in combination with data that cannot be used to identify an individual natural person ("**Non-Identifiable Data**"), for medical research, including research related to activities hereunder, and any filings of medical research study results with government Regulatory Authorities worldwide. Merck will: (a) not use or disclose Research Data Sets for any purpose other than as permitted by this Agreement, or as otherwise required by Law; (b) use appropriate safeguards to prevent the creation, use or disclosure of Research Data Sets other than as provided for by this Agreement; and (c) not use the Research Data Sets to identify any study subject or contact any study subject. Notwithstanding the foregoing, nothing in this Section 8.2.6 shall limit Merck's use or disclosure of Non-Identifiable Data.

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8.3 **Use of Human Materials.** If any human cell lines, human tissue, human clinical isolates or similar human-derived materials ("**Human Materials**") have been or are to be collected by or on behalf of a Party for use in the NP201 Research Collaboration or the Research Program, the collecting or using Party, as applicable, represents and warrants: (i) that it has complied, or shall comply, with all Laws relating to the collection and/or use of the Human Materials; and (ii) that it has obtained, or shall obtain, all necessary approvals and appropriate informed consents, in writing, for the collection and/or use of such Human Materials. The collecting or using Party, as applicable, shall provide documentation of such approvals and consents upon the other Party's request. Each Party further represents and warrants that such Human Materials collected by or on behalf of such Party may be used in the NP201 Research Collaboration or Research Program as contemplated in this Agreement without any obligations to the individuals or entities ("**Providers**") who contributed the Human Materials, including any obligations of compensation to such Providers or any other Third Party for the intellectual property associated with, or use of, the Human Materials in the NP201 Research Collaboration or Research Program.

8.4 **Animal Research.** If animals are used in the NP201 Research Collaboration or the Research Program, the Party using such animals will comply with the Animal Welfare Act or any other applicable local, state, national and international Laws relating to the care and use of laboratory animals. Each Party encourages the other Party to use the highest standards, such as those set forth in the Guide for the Care and Use of Laboratory Animals (NRC, 1996), for the humane handling, care and treatment of such research animals. All animals that are used in the course of the NP201 Research Collaboration or Research Program, or all products derived from those animals, such as eggs or milk, will not be used for food purposes, nor will these animals be used for commercial breeding purposes.

8.5 **Product Complaints.** Each Party shall be responsible for handling product complaints arising pursuant to its Development and Commercialization activities hereunder in compliance with Law. Each Party shall promptly provide the other Party with written notice of any such product complaint received by such Party, to the extent such Party deems such product complaint material.

ARTICLE 9
PAYMENTS; ROYALTIES AND REPORTS

9.1 **Research Funding; Extension Payments.** In consideration for NGM's performance under the Research Program and NP201 Research Collaboration, Merck shall pay to NGM the research funding as set forth in Article 3 and Article 4. All such research funding payments shall be non-refundable (except as expressly set forth herein) and non-creditable. In the event Merck notifies NGM of its exercise of either of Merck's options to extend the Research Program (*i.e.*, the First Extension Period or Second Extension Period) pursuant to Section 4.1.3, then in each case, Merck shall pay to NGM an extension payment of [*] within [*] days of the applicable Merck notice of exercise.

9.2 **Up-Front Fee.** In consideration of NGM's research efforts before the Effective Date, conduct of the Collaboration and the rights and licenses (including the license granted under the NP201 Program) and options thereto granted to Merck under this Agreement, Merck shall pay to NGM a non-refundable, non-creditable up-front fee in the aggregate amount of Ninety Four Million and Four Dollars ($94,000,004.00) within [*] days following the Effective Date, [*].

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9.3 **Equity Investment.** Pursuant to and as further detailed in the Stock Purchase Agreement, Merck will make an initial equity investment, at the Closing (as defined in the Stock Purchase Agreement), of One Hundred Five Million Nine Hundred Ninety-Nine Thousand and Nine Hundred Ninety-Six Dollars ($105,999,996.00) as payment for approximately fifteen percent (15%) of the fully diluted shares outstanding in NGM, and will have certain other additional rights and obligations to purchase the capital stock of NGM. In addition, pursuant to and as further detailed in the Letter Agreement dated as of the Closing between Merck and NGM, in the event Merck exercises either of its options to extend the Research Program, then at each such exercise, Merck may elect to acquire additional equity in NGM.

9.4 **Option Exercise Payment.** Within thirty (30) days of each exercise by Merck of the Merck Option for an Option Subject Compound under Section 5.3, Merck shall pay to NGM a non-refundable, non-creditable option exercise payment of Twenty Million Dollars ($20,000,000.00) (each, an "**Option Fee**"); provided, however, that, in the event that Antitrust Approvals are required, in connection with the exercise of a particular Merck Option, in accordance with Section 16.17.2, then such payment shall not be due until the later of [*] days of such exercise or the receipt of such Antitrust Approvals; provided, further, that, if any requisite Antitrust Approval is not received or is no longer being sought, then: (a) Merck shall promptly notify NGM; (b) such Merck Option will be deemed to not have been exercised within the applicable Option Period; (c) no Option Fee will be due in connection with such Merck Option; (d) no rights or licenses will be granted pursuant to Section 5.4 in connection with such Merck Option; and (e) the relevant POC Compound and its Related Compounds shall not become Optioned Compounds but instead shall be deemed to have been rejected by Merck for a Technical Issue (regardless of how such an issue is described in Section 5.3.3) and shall be subject to Section 5.3.3. For clarity no Option Fee shall be payable with respect to any NP201 Compounds, which are subject to the exclusive license set forth in Article 3 as of the Effective Date.

9.5 **Milestone Payments for all Products.**

9.5.1 *Development and Regulatory Milestones*. Merck shall pay to NGM the amounts set forth below, which shall be non-refundable and non-creditable, on the first achievement by or on behalf of Merck or any Related Party of each of the following milestone events for each Program Compound (or Product containing or comprising such Program Compound, as applicable) or Small Molecule Collaboration Compound (or Small Molecule Product containing or comprising such Small Molecule Collaboration Compound, as applicable) (each, a "**Milestone Product**"); provided, however, that for any Milestone Product that is advanced following and on account of failure of an earlier Milestone Product (such newly advanced Milestone Product, a "**Back-up Product/Compound**"), Merck shall not be obligated to make milestone payment(s) to NGM with respect to the subsequent achievement by such Back-up Product/Compound of any milestone event that was previously achieved (and for which the applicable milestone payment was made to NGM) by the relevant failed Milestone Product; provided, further, that: (a) the milestone payments under this Section 9.5.1 for a Milestone Product shall be [*] for any [*] that [*]; and (b) no milestone payments shall be due under this Section 9.5.1 with respect to any Product for which NGM exercises its NGM ANS Option under Article 7:

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Milestone Event	Milestone Payment		
	[*]	[*]	[*]
	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]
[*]	[*]	[*]	[*]

9.5.2 *Commercial Milestones*. For each Milestone Product, Merck shall pay to NGM the non-refundable, non-creditable amounts set forth below upon the first occurrence of such Milestone Product achieving each annual aggregate worldwide Net Sales threshold set forth below; provided, however, that: (a) the milestone payments under this Section 9.5.2 shall be [*] for any [*]; and (b) no milestone payments shall be due under this Section 9.5.2 with respect to any Product for which NGM exercised its NGM ANS Option under Article 7. For clarity, each commercial milestone is payable once per financial threshold per Milestone Product, such that no more than two commercial milestones shall be paid on any Milestone Product.

Aggregate Annual Net Sales of Milestone Product in the Territory in a Calendar Year	Milestone Payment
Net Sales of a Milestone Product exceed in a single Calendar Year [*]	[*]
Net Sales of a Milestone Product exceed in a single Calendar Year [*]	[*]

9.5.3 *Notification and Payment Upon Occurrence of Milestone Events.* Merck shall notify NGM in writing within: (i) [*] days following the achievement of each development or regulatory milestone; and (ii) within [*] days following the end of the Calendar Quarter in which any commercial milestone is achieved. All development and regulatory milestone payments will be paid to NGM within [*] days of achievement of such milestone. All commercial milestones will be paid within [*] days following the end of the Calendar Quarter in which any commercial milestone is achieved. If a clinical milestone event is skipped for a particular Milestone Product, such skipped milestone is payable upon achievement of the next clinical milestone event or regulatory milestone event; provided, however, that if such clinical milestone or regulatory milestone is skipped for an Indication because such clinical milestone or regulatory milestone is not required for such Indication due to another Indication of such Milestone Product having achieved such clinical milestone or regulatory milestone, then no such payment for such skipped milestone shall be payable.

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9.5.4 *Single Payment Per Compound/Product*. Notwithstanding the foregoing, if a given milestone payment for a given milestone event for an Indication is paid with respect to a given Program Compound or Small Molecule Collaboration Compound, then such milestone payment shall not be payable again with respect to any subsequent achievement of the same milestone event for the same Indication by a Product or Small Molecule Product containing or comprising such Program Compound or Small Molecule Collaboration Compound, and vice versa.

9.6 Royalties to NGM.

9.6.1 *Royalties Payable to NGM.* Subject to the terms and conditions of this Agreement, Merck shall pay to NGM tiered, non-refundable, non-creditable royalties on each Product, Program Compound (pursuant to Section 9.6.1(f)), Small Molecule Product and Small Molecule Collaboration Compound (pursuant to Section 9.6.1(f)) (each, a "**Royalty Product**"), calculated on a Royalty Product-by- Royalty Product and country-by-country (subject to Section 9.6.1 (c)) basis, as set forth in this Section 9.6.1:

(a) Royalty Rates. Subject to 9.6.1(b) below, the royalty tiers below shall be on a Royalty Product-by-Royalty Product and country-by-country (subject to Section 9.6.1(c)) basis in those countries where: (i) [*] such Royalty Product is claimed in a Valid Patent Claim in such country; or (ii) such Royalty Product [*]; provided, however, that the following royalty rates shall be [*] for any [*]:

Aggregate Annual Net Sales of A Given Royalty Product in the Territory in a Calendar Year	**Royalty Rate**
The portion of Net Sales less than [*]	[*]
The portion of Net Sales greater than or equal to [*] but less than [*]	[*]
The portion of Net Sales greater than or equal to [*]	[*]

(b) Know-How Royalty. Notwithstanding the provisions of Section 9.6.1(a), in countries where: (i) the manufacture, sale or use of a Royalty Product would not infringe a Valid Patent Claim in such country; and (ii) the regulatory or market exclusivity, if any, granted by a Regulatory Authority in such country with respect to such Royalty Product has expired, Merck shall pay royalty rates that shall be set at [*] of the applicable royalty rate determined according to Section 9.6.1(a).

(c) Determination of Royalty Tiers. Royalty tiers pursuant to Section 9.6.1(a) and 9.6.1(b) shall be calculated based on Net Sales of each Royalty Product in those countries in the Territory in which the Royalty Term remains in effect with respect to such Royalty Product and country; provided, however, that, the determination of whether the royalty shall be calculated under Section 9.6.1(a) or Section 9.6.1(b) shall be determined on a country-by-country basis. For clarity: (i) the allocation within each royalty tier between Section 9.6.1(a) and Section 9.6.1(b) shall be based on the percentage of total Net Sales that qualify for the reduced royalty

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rate pursuant to Section 9.6.1(b); and (ii) from and after the expiration of the Royalty Term with respect to a given Royalty Product and country, sales of such Royalty Product in such country shall no longer be included in calculating the royalty tiers or royalty payments due hereunder.

(d) Royalty Term. Royalties on each Royalty Product at the rates set forth above shall commence upon the First Commercial Sale of such Royalty Product in a given country and shall continue on a Royalty Product-by-Royalty Product and country-by-country basis until the latest of: (a) the expiration of the last-to-expire Valid Patent Claim in such country with respect to such Royalty Product; (b) [*]; or (c) the [*] anniversary of the First Commercial Sale of such Royalty Product in such country (the "**Royalty Term**").

(e) Royalty Conditions. All royalties are subject to the following conditions:

(i) that only one royalty shall be due with respect to the same unit of Royalty Product;

(ii) that no royalties shall be due upon the sale or other transfer among Merck or its Related Parties for resale purposes, but in such cases the royalty shall be due and calculated upon Merck's or its Related Party's Net Sales to the first independent Third Party;

(iii) no royalties shall accrue on the sale or other disposition of Royalty Product by Merck or its Related Parties for use in a Clinical Study; and

(iv) no royalties shall accrue on the disposition of Royalty Product in reasonable quantities by Merck or its Related Parties as samples (promotion or otherwise) or as donations (for example, to non-profit institutions or government agencies for a non-commercial purpose), provided, however, that Merck and its Related Parties do not receive any financial payment for such disposition.

(f) Royalties for Bulk Compound. In those cases in which Merck sells bulk Program Compound or Small Molecule Collaboration Compound, rather than Product or Small Molecule Product, to Third Parties, and Merck is not being paid on sales of such Products or Small Molecule Products with respect to the applicable bulk Program Compound or Small Molecule Collaboration Compound sold to such Third Party, the royalty obligations of this Section 9.6.1 shall be applicable to Net Sales of such bulk Program Compound or Small Molecule Collaboration Compound, as applicable, and the definition of Net Sales shall apply to such bulk Program Compound and Small Molecule Collaboration Compound *mutatis mutandis*.

(g) Compulsory Licenses. If a compulsory license is granted to a Third Party with respect to Royalty Product in any country in the Territory with a royalty rate lower than the royalty rate provided by Section 9.6.1(a) or Section 9.6.1(b), as applicable, then the royalty rate to be paid by Merck on Net Sales in that country under Section 9.6.1(a) or Section 9.6.1(b) shall be reduced to the rate paid by the compulsory licensee.

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(h) Third Party Patent Licenses. In the event that one or more patent licenses from other Third Parties are required by Merck or its Related Parties in order to make, have made, use, offer to sell, sell or import one or more Program Compounds, Products, Small Molecule Collaboration Compounds or Small Molecule Products, as applicable (hereinafter "**Third Party Patent Licenses**"), [*] of the royalties actually paid under such Third Party Patent Licenses with respect to such Royalty Product by Merck or its Related Parties for a Calendar Quarter shall be creditable over time against the royalty payments due NGM by Merck with respect to the sale of the Royalty Product incorporating such Program Compound or Small Molecule Collaboration Compound (as applicable); provided, however, that in no event shall the royalties paid by Merck to NGM for such Calendar Quarter be reduced to less than [*] of the amounts that would be owed pursuant to Section 9.6.1(a) or Section 9.6.1(b), as applicable, in the absence of such credit.

(i) Generic Competition. On a country-by-country and Royalty Product-by- Royalty Product basis, if during a given Calendar Quarter one or more Third Parties is: (a) selling a Generic Bioequivalent Product for such Product or Generic Small Molecule Product for such Small Molecule Product, as applicable, in such country; and (b) such sales of such Generic Bioequivalent Product(s) or Generic Small Molecule Product(s), as applicable, in such country are, in the aggregate (on a unit equivalent basis), greater than [*] of the number of units of such Product or such Small Molecule Product, as applicable, sold in such country during such period, then, from and after such Calendar Quarter during which clauses (a) and (b) are satisfied, the royalties due for sales of such Product or Small Molecule Product, as applicable, in such country shall be reduced to [*] of the amount that would otherwise have been due under Section 9.6.1(a); provided, however, that such reduction shall not be cumulative with any reductions permitted under Section 9.6.1(h) above. For clarity, [*].

9.7 **Royalties to Merck**. Subject to Section 4.8.3 and the other terms and conditions of this Agreement, NGM shall pay to Merck certain non-refundable and non-creditable royalties calculated on a product-by-product and country-by-country basis, as set forth in this Section 9.7. NGM shall pay Merck a quarterly royalty on worldwide Net Sales of any product that incorporates or contains a Refused Candidate or a Non-Qualifying Compound, with royalty rates based on the development stage of the applicable Refused Candidate or Non-Qualifying Compound, as follows:

Stage of Development	**Royalty Rate**
Refused Candidate or Non-Qualifying Compound prior to [*] such Refused Candidate or Non-Qualifying Compound [*] of such Refused Candidate or Non-Qualifying Compound	[*]
Refused Candidate or Non-Qualifying Compound after [*] such Refused Candidate or Non-Qualifying Compound [*] of such Refused Candidate or Non-Qualifying Compound	[*]

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The royalty-related obligations and rights set forth in Sections 9.7 through 9.11, inclusive, shall be applicable to Net Sales of such products containing Refused Candidates or Non-Qualifying Compounds, and the definition of Net Sales shall apply to such products *mutatis mutandis*.

9.8 **Reports; Payment of Royalty**. During the term of this Agreement following the First Commercial Sale of a Royalty Product, Merck shall furnish to NGM a quarterly written report for each Calendar Quarter showing in reasonable detail, on a Royalty Product-by-Royalty Product basis, the Net Sales of all Royalty Products subject to royalty payments sold by Merck and its Related Parties in the Territory during the reporting period and the royalties payable under this Agreement. Reports shall be due on the sixtieth (60^{th}) day following the close of each Calendar Quarter. Royalties shown to have accrued by each royalty report shall be due and payable on the date such royalty report is due. Merck shall keep complete and accurate records in sufficient detail to enable the royalties payable hereunder to be determined.

9.9 **Audits.**

9.9.1 Upon the written request of a Party ("**Auditing Party**") and not more than once in each Calendar Year, the other Party ("**Auditee**") shall permit an independent certified public accounting firm of nationally recognized standing selected by the Auditing Party and reasonably acceptable to the Auditee, at the Auditing Party's expense, to have access during normal business hours to such of the books and records of Auditee as may be reasonably necessary to verify the accuracy of the royalty reports, Adjusted Net Sales payments (including any reports or calculations relating to any NGM ANS Option exercised by NGM), or any other amounts payable hereunder for any Calendar Year ending not more than [*] prior to the date of such request. The accounting firm shall provide a written report to the Auditing Party that discloses only information necessary to verify whether the royalty reports or other financial reports furnished by the Auditee or the amount of payments by the Auditee under this Agreement are correct or incorrect, the amount of any discrepancy and basis for the accounting firm's conclusion (if applicable) that there was a discrepancy. No other information shall be provided to NGM.

9.9.2 If such accounting firm correctly identifies a discrepancy made during such period, the appropriate Party shall pay the other Party the amount of the discrepancy within thirty (30) days of the date the Auditing Party delivers to the Auditee such accounting firm's written report so correctly concluding, or as otherwise agreed upon by the Parties. The fees charged by such accounting firm shall be paid by the Auditing Party; provided, however, that, if such audit uncovers an underpayment of amounts by the Auditee that exceeds [*], then the fees of such accounting firm shall be paid by the Auditee.

9.9.3 Merck shall include in each sublicense granted by it pursuant to this Agreement a provision requiring the sublicensee to make reports to Merck, to keep and maintain records of sales made (or any other applicable financial information) pursuant to such sublicense

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and Merck shall use Commercially Reasonable Efforts to include in each such sublicense the sublicensee's grant of access to such records by NGM's independent accountant to the same extent required of Merck under this Agreement; provided, however, that if Merck cannot obtain such audit rights for NGM, then Merck shall (to the extent permitted under such sublicense) audit such sublicensee upon NGM's reasonable request, and at NGM's sole cost and expense, and Merck shall promptly share such audit results with NGM, including providing a copy of any audit report (subject to any applicable confidentiality provisions).

9.9.4 Upon the expiration of [*] following the end of any Calendar Year, the calculation of royalties or other amounts payable with respect to such Calendar Year shall be binding and conclusive upon an Auditing Party, and the Auditee and its Affiliates (in the case of Merck, its Related Parties) shall be released from any liability or accountability with respect to royalties or other applicable payments for such Calendar Year.

9.9.5 The Auditing Party shall treat all financial information subject to review under this Section 9.9 or under any sublicense agreement in accordance with the confidentiality and non-use provisions of this Agreement, and shall cause its accounting firm to enter into an acceptable confidentiality agreement with the Auditee and/or its Affiliates or Related Parties, as applicable, obligating it to retain all such information in confidence pursuant to such confidentiality agreement.

9.10 Payment Exchange Rate. All payments to be made by Merck to NGM under this Agreement shall be made in United States dollars by bank wire transfer in immediately available funds to such bank account in the United States as may be designated in writing by NGM from time to time. In the case of sales outside the United States, the rate of exchange to be used in computing the monthly amount of currency equivalent in United States dollars due NGM shall be made at the monthly rate of exchange utilized by Merck in its worldwide accounting system.

9.11 Taxes.

9.11.1 Each Party shall be solely liable for all income and other taxes (including interest) ("**Taxes**") imposed upon any payments made by the other Party ("**Payer**") to such Party ("**Payee**") under this Agreement ("**Agreement Payments**").

9.11.2 If Law requires the withholding of Taxes, the Payer shall, subject to Section 9.11.3, make such withholding payments and shall subtract the amount thereof from the Agreement Payments. The Payer shall submit to the Payee appropriate proof of payment of the withheld Taxes as well as the official receipts within a reasonable period of time. The Payer shall provide the Payee reasonable assistance in order to allow the Payee to obtain the benefit of any present or future treaty against double taxation which may apply to the Agreement Payments.

9.11.3 The Parties agree that, as of the Execution Date, each Payer is not required by the Laws of the US to deduct or withhold taxes on the Agreement Payments. If an incremental withholding or deduction obligation arises as a result of any action by the Payer, including any assignment, sublicense, change of place of incorporation or failure to comply with Laws or filing or record retention requirements (a "**Withholding Tax Action**"), then the sum payable by the Payer (in respect of which such deduction or withholding is required to be made) shall be increased to the extent necessary to ensure that the Payee receives a sum equal to the sum that it would have received had no such Withholding Tax Action occurred. Otherwise, the sum payable by the Payer (in respect of which such deduction or withholding is required to be made) shall be made to the Payee after deduction of the amount required to be so withheld or deducted.

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ARTICLE 10
CONFIDENTIALITY AND PUBLICATION

10.1 **Nondisclosure Obligation**. All Information disclosed by one Party to the other Party hereunder or pursuant to the Prior CDA shall be maintained in confidence by the receiving Party and shall not be disclosed to any Third Party or used for any purpose except as set forth herein without the prior written consent of the disclosing Party, except to the extent that such Information:

10.1.1 is known by the receiving Party at the time of its receipt, and not through a prior disclosure by the disclosing Party, as documented by the receiving Party's business records;

10.1.2 is in the public domain by use and/or publication before its receipt from the disclosing Party, or thereafter enters the public domain through no fault of the receiving Party;

10.1.3 is subsequently disclosed to the receiving Party by a Third Party who may lawfully do so and is not under an obligation of confidentiality to the disclosing Party;

10.1.4 is developed by the receiving Party independently of Information received from the disclosing Party, as documented by the receiving Party's business records;

10.1.5 is disclosed to governmental or other regulatory agencies in order to obtain patents or to gain or maintain approval to conduct clinical trials or to market Products or Small Molecule Products, but such disclosure may be only to the extent reasonably necessary to obtain patents (subject to the applicable provisions of Article 12) or authorizations;

10.1.6 is deemed necessary by Merck to be disclosed to Related Parties, agent(s), consultant(s) and/or other Third Parties for any and all purposes Merck and its Affiliates deem necessary or advisable in the ordinary course of business in the exercise and performance of its rights and obligations under and in accordance with this Agreement (including the exercise of licenses granted to Merck hereunder) on the condition that such Third Parties agree to be bound by confidentiality and non-use obligations that substantially are no less stringent than those confidentiality and non-use provisions contained in this Agreement; provided, however, that the term of confidentiality for such Third Parties shall be no less than five (5) years; or

10.1.7 is deemed necessary by NGM to be disclosed to employees, agent(s) and consultant(s), and/or other Third Parties for any and all purposes NGM and its Affiliates deem necessary or advisable for NGM to conduct the Collaboration, or to exercise and perform its rights and obligations under and in accordance with this Agreement (including the exercise of licenses granted to NGM hereunder) or for NGM's scientific advisory board to perform its ordinary roles and responsibilities on the condition that such Third Parties agree to be bound by confidentiality and non-use obligations that substantially are no less stringent than those confidentiality and non-use provisions contained in this Agreement; provided, however, that the term of confidentiality for such Third Parties shall be no less than five (5) years;

10.1.8 is deemed necessary by a Party to be [*] provided, however, that the term of confidentiality for such investor, acquiror, merger partner or other financial partner shall be no less than five (5) years; or

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10.1.9 is deemed necessary by counsel to the receiving Party to be disclosed to such Party's attorneys, independent accountants or financial advisors for the sole purpose of enabling such attorneys, independent accountants or financial advisors to provide advice to the receiving Party, on the condition that such attorneys, independent accountants and financial advisors agree to be bound by the confidentiality and non-use obligations contained in this Agreement; provided, however, that the term of confidentiality for such attorneys, independent accountants and financial advisors shall be no less than seven (7) years.

Any combination of features or disclosures shall not be deemed to fall within the foregoing exclusions merely because individual features are published or available to the general public or in the rightful possession of the receiving Party unless the combination itself and principle of operation are published or available to the general public or in the rightful possession of the receiving Party.

If a Party is required by judicial or administrative process to disclose Information that is subject to the non-disclosure provisions of this Section 10.1 or Section 10.2, such Party shall promptly inform the other Party of the disclosure that is being sought in order to provide the other Party an opportunity to challenge or limit the disclosure obligations. Information that is disclosed by judicial or administrative process shall remain otherwise subject to the confidentiality and non-use provisions of this Section 10.1 and Section 10.2, and the Party disclosing Information pursuant to Law or court order shall take all steps reasonably necessary, including seeking an order of confidentiality, to ensure the continued confidential treatment of such Information.

10.2 **Program Compound and Product Specific Information.** Without limiting the provisions of Section 10.1, NGM agrees to keep all NP201 Know-How and NGM Know-How and Collaboration Inventions relating solely or primarily to a Program Compound or Product confidential, subject to Section 10.1.2. Such obligation, however, shall not apply to any such NP201 Know-How, NGM Know-How or Collaboration Inventions: (a) to the extent and as of the time, if any, that the Program Compound or Product to which they solely or primarily relate [*], or upon termination under Article 13, [*]; or (b) to the extent relating to any Non-Qualifying Compounds, Non-Qualifying Targets or Refused Candidates.

10.3 **Publication.** Neither Merck nor NGM may publish or present results of the Collaboration without the prior written consent of the other Party. Each such Party shall provide the non-publishing Party with a copy of the proposed manuscript or presentation that includes results of the Collaboration at least [*] days prior to submission for publication or presentation. If the proposed manuscript or presentation contains information of the non-publishing Party that is subject to the use and nondisclosure restrictions under this Article 10, the publishing Party agrees to remove such information from the proposed publication or disclosure. Further, if the non-publishing Party believes the publication or disclosure of such results would be unfairly damaging to its ongoing research, Development or commercialization with respect to Program Compounds, Products, Small Molecule Collaboration Compounds or Small Molecule Products (if Merck is the non-publishing Party) or any Refused Candidates, Non-Qualifying Compounds, Non-Qualifying Targets, [*] (if NGM is the non-publishing Party, as of such time as they become such) and the non-publishing Party has a reasonable basis for not publishing or presenting such results, then, upon request of the non-publishing Party, the results shall not be published or presented until the matter is resolved. If the matter cannot be resolved between the Parties by mutual agreement, it shall be resolved in accordance with Section 16.7.

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10.4 **Use of Names.** No Party shall use the name, trademark, trade name or logo of the other Party, its Affiliates or their respective employee(s) in any publicity, promotion, news release or disclosure relating to this Agreement or its subject matter, without the prior express written permission of the other Party, except as may be required by Law or otherwise expressly permitted in this Agreement; except that where a Party has consented to a specific use of its name, trademark, trade name or logo by the other Party, such other Party shall have the right again to use such name, trademark, trade name or logo for such same specific use, without the consent of the other Party.

10.5 **Exceptions to Confidentiality Obligations.** A receiving Party may disclose Information of the disclosing Party if the receiving Party obtains the disclosing Party's prior written consent to disclose the identified information. Moreover, the receiving Party may disclose Information of the disclosing Party solely to the extent required to be disclosed by the receiving Party to comply with Applicable Law (including securities laws or regulations and the applicable rules of any public stock exchange) or to defend or prosecute litigation or comply with an order of a court or other government order; provided, however, that the receiving Party notifies the disclosing Party of such order insofar as possible and provides reasonable assistance in obtaining a protective order or confidential treatment preventing or limiting the disclosure and/or requiring that the Information so disclosed be used only for the purposes for which the Law required, or for which the order was issued. For the avoidance of doubt: (i) Merck may disclose NGM's Information as reasonably necessary for making regulatory filings in connection with the Development or Commercialization of Products or Small Molecule Products hereunder; (ii) NGM may disclose Merck's Information as reasonably necessary for making regulatory filings in connection with: (a) the Development or Commercialization of any [*], or any NP201 Compound to the extent responsibility for such filing is allocated to NGM under the NP201 Research Plan; or (b) the development or commercialization of any Refused Candidate or Non-Qualifying Compound; and (iii) a Party controlling prosecution of any Patent Rights pursuant to this Agreement may disclose the other Party's Information to Patent Offices in connection with such permitted prosecution.

10.6 **Confidentiality of Agreement Terms.** Each Party agrees not to, and to cause its Affiliates not to, disclose to any Third Party any terms of this Agreement without the prior written consent of the other Party hereto, except each Party and its Affiliates may disclose the terms of this Agreement: (a) to advisors (including financial advisors, attorneys and accountants), actual or potential acquirors or bona fide potential investors, and others on a need to know basis, in each case under appropriate confidentiality provisions substantially equivalent to those in this Agreement; or (b) to the extent necessary to comply with Applicable Laws and court orders (including securities laws or regulations and the applicable rules of any public stock exchange).

10.7 **Publicity.**

10.7.1 *Initial Press Releases*. The Parties acknowledge an intent to agree on the contents of a press release regarding this Agreement (including the existence and certain terms hereof) that can be issued by the Parties promptly after the Execution Date. For clarity, neither Party shall issue any such press release regarding this Agreement unless the form of such release has been mutually agreed upon by the Parties.

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10.7.2 *Further Publicity*.

(a) Investor Information. Each disclosing Party acknowledges that the other Party receiving the disclosing Party's Information hereunder may, from time to time, be required by Law or rule of any stock exchange, such as Forms 8-K, 10-Q and 10-K, including as may be required by Law in connection with an initial public offering (IPO) ("**Required Disclosure**"), to publicly disclose the terms of this Agreement, or significant results or developments regarding any Products, to keep its investors reasonably informed of the achievement of milestones, significant events in the Development of Optioned Products and Commercialization activities and the like, and that such Required Disclosures may pertain to Information of the other Party that is not otherwise permitted to be disclosed under this Article 10. To the extent Merck discloses to NGM information related to events or circumstances involving the Development or Commercialization of any Product that NGM believes is insufficient to allow it to accurately determine the materiality of such information and whether is constitutes a Required Disclosure, Merck shall consider in good faith NGM's reasonable questions with respect to such event so as to better enable it to assess such materiality.

(b) Public Disclosure Review Procedure. With respect to any Required Disclosure, except for the initial press release described in Section 10.7.1, the receiving Party (the "**Requesting Party**") shall provide the other Party (the "**Reviewing Party**") with a draft of the Content (as defined in the next sentence) of the draft Required Disclosure for review, at least ten (10) Business Days in advance of the issuance of the filing of the Required Disclosure. The word "**Content**" in this Section 10.7.2(b) means any information relating to the activities contemplated by this Agreement, and does not include any other business information of the Requesting Party or information pertaining to the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995 relating to "forward-looking statements." The Reviewing Party may notify the Requesting Party of any reasonable objections or suggestions that the Reviewing Party may have regarding the Content in the Required Disclosure provided for review under this Section, and the Requesting Party shall reasonably consider any such objections or suggestions that are provided in a timely manner. The principles to be observed with respect to disclosures of information in a Required Disclosure shall include accuracy, disclosure of factual, rather than speculative information, compliance with Applicable Law and regulatory guidance documents, reasonable sensitivity to potential negative reactions of a Regulatory Authority, reasonable sensitivity to commercial information of value to competitors and the need to keep investors informed regarding the Requesting Party's business. The Requesting Party shall use commercially reasonable efforts to adopt the reasonable requests of the Reviewing Party with respect to its Information and the Requesting Party shall remove such Information from the Required Disclosure if such Information is not required to be disclosed by Law. Notwithstanding the foregoing, NGM shall have the right to disclose in a press release the occurrence of the following research and development events arising from the Research Program and the NP201 Program: (1) achievement of any milestone event set forth in Section 9.5.1; (2) Merck's exercise of a Merck Option; and (3) NGM's exercise of an NGM ANS Option; provided, however, that NGM provides to Merck the Content of any such press release in the manner provided above, and, in the case where such Content does not also constitute a Required Disclosure, Merck approves such Content with respect to the particulars included pertaining to the events in clauses (1), (2) or (3), as applicable.

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ARTICLE 11
REPRESENTATIONS AND WARRANTIES

11.1 **Representations and Warranties of Each Party**. Each Party represents and warrants to the other Party that as of the Execution Date, the Effective Date and as of the date that Merck exercises each Merck Option:

11.1.1 it has the full right, power and authority to enter into this Agreement and to perform its obligations hereunder; and

11.1.2 this Agreement has been duly executed by it and is legally binding upon it, enforceable in accordance with its terms and does not conflict with any agreement, instrument or understanding, oral or written, to which it is a party or by which it may be bound, nor violate any material Law of any court, governmental body or administrative or other agency having jurisdiction over it.

11.2 **NGM Representations and Warranties**. NGM represents and warrants to Merck that, except as set forth in Schedule 11.2, as of the Execution Date and, as of the date that NGM provides the Data Package for each Merck Option and solely to the extent that the representations and warranties pertain to the applicable Optioned Compound or Optioned Product for such Merck Option or the intellectual property rights that would be licensed to Merck in connection with the exercise of such Merck Option, in each case subject to the written disclosures provided by NGM to Merck in writing in the Data Package for the applicable Merck Option, provided that, at NGM's request, Merck will enter into a common interest agreement prior to the provision of such Data Package:

11.2.1 to NGM's knowledge, issued patents contained in the NGM Patents and NP201 Patents exist and are not invalid or unenforceable, in whole or in part;

11.2.2 it has the full right, power and authority to grant the options and licenses granted under this Agreement;

11.2.3 it has not previously assigned, transferred, conveyed or otherwise encumbered its right, title and interest in: (i) the NGM Patents or NP201 Patents (or in any intellectual property rights that but for such assignment, transfer, conveyance or encumbrance would qualify as NGM Patents or NP201 Patents); and (ii) as of the Execution Date, the quantities of NP201 Compounds and NP201 Products in its or its Affiliate's possession, and, as of the date of provision of the applicable Data Package, the quantities of Optioned Compounds and Optioned Products in its or its Affiliate's possession that are the subject of the applicable Merck Option, in each case of (i) and (ii), in any manner that would conflict with the rights granted to Merck hereunder;

11.2.4 (i) as of the Execution Date, it and its Affiliates have not previously granted to any Person any right, which is in force as of the Execution Date, to: (a) manufacture or commercialize any NP201 Compound or NP201 Product, except non-exclusive rights to contract manufacturers or other vendors engaged by NGM or its Affiliate to manufacture NP201 Compounds or NP201 Products; or (b) research or develop any NP201 Compound or NP201 Product, except non-exclusive rights to contract research organizations or other vendors engaged by NGM or its Affiliate to research or develop NP201 Compounds or NP201 Products, in each case of (a) and (b), on NGM's or its Affiliate's behalf; and (ii) as of the date of provision of the applicable Data Package, it and its Affiliates have not previously granted to any Person any right, which is in force as of such date, to (a)

manufacture or commercialize any Optioned Compound or Optioned Product that is the subject of the applicable Merck Option, except non-exclusive rights to contract manufacturers or other vendors engaged by NGM or its Affiliate to manufacture such Optioned Compound or Optioned Product, or (b) research or develop any Optioned Compound or Optioned Product that is the subject of the applicable Merck Option, except non-exclusive rights to contract research organizations or other vendors engaged by NGM or its Affiliate to research or develop such Optioned Compound or Optioned Product, in each case of (a) and (b), on NGM's or its Affiliate's behalf.

11.2.5 to NGM's knowledge, it is the sole and exclusive owner of: (i) as of the Execution Date, the NGM Patents, NP201 Patents, material NP201 Know-How, and the quantities of NP201 Compounds and NP201 Products in its or its Affiliate's possession; and (ii) as of the date of provision of the applicable Data Package, the NGM Patents and material NGM Know-How that would be licensed in connection with the exercise of such Merck Option, and the quantities of Optioned Compounds and Optioned Products in its or its Affiliate's possession that are the subject of such Merck Option, in each case of (i) and (ii), all of which are free and clear of any liens, charges and encumbrances, and, no other person, corporate or other private entity, or governmental entity or subdivision thereof, has or shall have any claim of ownership whatsoever (except where NGM Controls the relevant Patent Rights or Know-How through any in-license) with respect to any such NGM Patents, NP201 Patents, material NP201 Know-How, NGM Patents, material NGM Know-How, NP201 Compounds, NP201 Products, or quantities of Optioned Compounds or Optioned Products;

11.2.6 there are no claims, judgments or settlements against or owed by NGM (or any of its Affiliates), and no pending or (to NGM's knowledge) threatened claims or litigation, relating to: (i) as of the Execution Date, the NGM Patents, NP201 Patents, material NP201 Know-How, NP201 Compounds or NP201 Products; or (ii) as of the date of provision of the applicable Data Package, the NGM Patents and material NGM Know-How that would be licensed to Merck in connection with the exercise of such Merck Option, and the Optioned Compounds and Optioned Products that are the subject of such Merck Option;

11.2.7 NGM has: (i) as of the Execution Date, disclosed to Merck all material information, in existence and known by NGM or its Affiliates as of the Execution Date, regarding NP201, NP319, NGM395, NGM386, NGM160, or the NP201 Patents then in existence; and (ii) as of the date of provision of the applicable Data Package, disclosed to Merck all material information, in existence and known by NGM or its Affiliates as of such date, regarding the Optioned Compounds and Optioned Products that are the subject of such Merck Option and the NGM Patents and material NGM Know-How that would be licensed to Merck in connection with the exercise of such Merck Option;

11.2.8 NGM has: (i) as of the Execution Date, disclosed to Merck the existence of any patent opinions in NGM's or its Affiliate's possession (or that NGM or an Affiliate has previously had prepared but that is no longer in its actual possession) related to the NP201 Compounds in existence, NP201 Patents in existence as of the Execution Date; and (ii) as of the date of NGM's provision of the Data Package for the applicable Merck Option, disclosed to Merck the existence of any patent opinions in NGM's or its Affiliate's possession (or that NGM or an Affiliate has previously had prepared but that is no longer in its actual possession) related to the Optioned Compounds and Optioned Products that are the subject of such Merck Option and the NGM Patents that claim or cover the composition of matter, manufacture or use of the Optioned Compound or Optioned Product that is the subject of such Merck Option;

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11.2.9 (i) as of the Execution Date, Exhibit A and Exhibit B set forth true, correct and complete lists of the NP201 Patents and NGM Patents, respectively, and such lists contain all application numbers and filing dates, registration numbers and dates, jurisdictions and owners; and (ii) as of the date of NGM's provision of the Data Package for the applicable Merck Option, NGM has provided written lists of all NGM Patents that cover or claim the composition of matter, manufacture or use of the Optioned Compound or Optioned Product that is the subject of such Merck Option;

11.2.10 as of the Execution Date, the NP201 IP constitutes all intellectual property owned or otherwise controlled (through license or otherwise) by NGM or its Affiliates in relation to the NP201 Compounds that exists as of the Execution Date or is otherwise necessary for the performance of the NP201 Research Collaboration as described in the NP201 Research Plan attached to this Agreement as of the Execution Date;

11.2.11 [*] (i) as of the Execution Date, the conduct of the NP201 Research Collaboration as described in the NP201 Research Plan attached to this Agreement; (ii) as of the Execution Date, the making (but not with respect to any particular method of manufacture) and composition of matter of NP201, NP319, NGM395, NGM386 and NGM160; and (iii) as of the date of provision of the applicable Data Package, the making (but not with respect to any particular method of manufacture) and composition of matter of the Optioned Compounds that are the subject of such Merck Option exercise and the applicable POC Compound in the form in which it was administered in the applicable POC Trial, in each case of (i), (ii) and (iii), do not, and will not, interfere with or infringe or misappropriate any Patents, Know-How or other intellectual property rights owned or possessed by any Third Party;

11.2.12 As of the Execution Date, the Existing Collaboration Agreements are the only agreements to which NGM (or any of its Affiliates) is a party granting: (i) commercial rights to any antibody, peptide or other large molecule, or small molecule; or (ii) exclusive development rights to any human DNA sequence, RNA sequence, protein or peptide, in each case of clauses (i) and (ii), arising out of, or identified through, NGM's research and development activities;

11.2.13 As of the Execution Date, all information and data provided by or on behalf of NGM to Merck on or before the Execution Date in contemplation of this Agreement and as of the date of provision of the Data Package with respect to the applicable Merck Option, all information and data provided in such Data Package was and is true and accurate and complete in all material respects, and NGM has not failed to disclose any material information or data in its or its Affiliate's possession or otherwise known to it or its Affiliate that would reasonably be expected to cause the information and data that has been disclosed to be misleading in any material respect; and

11.2.14 As of the Execution Date, and as of the date of provision of the applicable Data Package, NGM, on a group-wide basis (*i.e.*, taking into account all Affiliates and all Persons with a twenty percent (20%) or greater stake in the voting securities of NGM or its Affiliates) did not generate Brazilian turnover of 75 million reais in its last completed fiscal year.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

11.3 **Disclaimer**. EACH PARTY HEREBY DISCLAIMS ANY AND ALL REPRESENTATIONS AND WARRANTIES IN CONNECTION WITH THE TRANSACTIONS CONTEMPLATED HEREIN NOT EXPRESSLY MADE IN THIS AGREEMENT TO THE MAXIMUM EXTENT PERMITTED UNDER APPLICABLE LAWS, INCLUDING WITH RESPECT TO THE COMPOUNDS, PRODUCTS, OR ANY TECHNOLOGY OR OTHER INTELLECTUAL PROPERTY LICENSED OR GRANTED UNDER THIS AGREEMENT, INCLUDING ANY WARRANTY OF NON-INFRINGEMENT, QUALITY, PERFORMANCE, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. FOR THE AVOIDANCE OF DOUBT, NOTHING CONTAINED IN THIS SECTION 11.3 SHALL OPERATE TO LIMIT OR INVALIDATE ANY EXPRESS WARRANTY CONTAINED HEREIN.

ARTICLE 12
INTELLECTUAL PROPERTY

12.1 **Ownership of Collaboration Technology**.

12.1.1 All Collaboration Inventions shall be solely owned by the Party that solely discovered or invented such Collaboration Invention, or jointly owned by the Parties if discovered or invented jointly by NGM and Merck, or their respective Affiliates or Related Parties or Third Parties working on their behalf or on behalf of their Affiliates or Related Parties.

12.1.2 Collaboration Patents shall be solely owned by the Party that solely owns the Collaboration Invention covered or claimed by such Collaboration Patent, or jointly owned by the Parties if the Parties jointly own such covered or claimed Collaboration Invention.

12.1.3 At each meeting of the IP Working Group, the Parties shall each disclose in writing the development, making, conception or reduction to practice of any Collaboration Invention, whether patentable or not, occurring since the prior such meeting.

12.1.4 As used in this Section 12.1 or other provisions referencing inventorship of the Parties, the terms NGM, Merck, Affiliates and Third Party shall include such party's employees, agents, contractors or any other such persons on such Party's behalf. Inventorship shall be determined according to US patent law. Each Party shall contractually bind such persons conducting work on their behalf to assign all intellectual property to such Party in accordance with the terms and intent of this Agreement.

12.2 **Filing, Prosecution and Maintenance of Patents**.

12.2.1 As between the Parties, NGM shall be responsible for preparing, filing, prosecuting and maintaining NP201 Patents, the NGM Patents and those Collaboration Patents solely owned by NGM ("**NGM Prosecuted Patents**"), [*]. [*]

12.2.2 As between the Parties, Merck shall have the sole right, at its sole expense and in its sole discretion, to prepare, file, prosecute and maintain the Merck Patent Rights and Merck Product Patents. As between the Parties, Merck shall have the first right, at its sole expense and in its sole discretion, to prepare, file, prosecute and maintain the Collaboration Patents solely owned by Merck ("**Merck Collaboration Prosecuted Patents**"). If Merck does not elect to file or proposes to abandon any Merck Collaboration Prosecuted Patent, Merck shall notify NGM (at least thirty (30) days prior to any filing or payment due date, or any other due date that requires action in order to avoid loss of rights, in connection with such Merck Collaboration Prosecuted Patent) and NGM shall have the right to continue

the prosecution of such Patent Rights at its sole expense. If NGM assumes preparation, filing, prosecution, maintenance and enforcement of any such Patent Rights pursuant to this Section 12.2.2, Merck shall execute such documents and perform such acts, in a timely manner, at NGM's request and Merck's expense, as may be reasonably necessary to permit NGM to assume the preparation, filing, prosecution, maintenance and enforcement of such Patent Rights. Notwithstanding the forgoing, with respect to Collaboration Patents that are jointly owned by the Parties and that primarily claim or cover a Small Molecule Collaboration Compound (as opposed to a Collaboration Compound), Merck shall have the first right to prepare, file, prosecute, maintain and enforce such Patent Rights.

12.2.3 With respect to Collaboration Patents that are jointly owned by the Parties ("**Joint Collaboration Patents**"), NGM shall have the first right to prepare, file, prosecute, maintain and enforce such Patent Rights, which shall be deemed NGM Prosecuted Patents for purposes of Sections 12.2.1 and 12.2.5.

12.2.4 In the case of Merck Collaboration Prosecuted Patents (including Joint Collaboration Patents that are prosecuted by Merck pursuant to Section 12.2.2), Merck shall give NGM an opportunity to review the text of the patent application before filing, shall implement NGM's reasonable comments with respect thereto and shall supply NGM with a copy of the application as filed, together with notice of its filing date and serial number. Merck shall keep NGM advised of the status of such patent filings and, upon NGM's request, shall provide advance copies of any papers related to the filing, prosecution and maintenance of such patent filings, shall implement NGM's reasonable comments with respect thereto and shall promptly give notice to NGM of the grant, lapse, revocation, surrender, invalidation or abandonment of any such patent filings. If Merck proposes to abandon any Joint Collaboration Patents that Merck initiated prosecution of pursuant to Section 12.2.2, then it shall notify NGM (at least thirty (30) days prior to any filing or payment due date, or any other due date that requires action in order to avoid loss of rights, in connection with such Patent Rights) and NGM shall have the right to continue the preparation, filing, prosecution and maintenance of such Patent Rights, which shall be deemed NGM Prosecuted Patents for purposes of Sections 12.2.1 and 12.2.5. If NGM assumes preparation, filing, prosecution and maintenance of any such Patent Rights pursuant to this Section 12.2.4, then Merck shall execute such documents and perform such acts, in a timely manner, at NGM's request and expense, as may be reasonably necessary to permit NGM to assume the preparation, filing, prosecution and maintenance of such Patent Rights.

12.2.5 In the case of NGM Prosecuted Patents (including any Joint Collaboration Patents), NGM shall give Merck an opportunity to review the text of the application before filing, shall implement Merck's reasonable comments with respect thereto and shall supply Merck with a copy of the application as filed, together with notice of its filing date and serial number. NGM shall keep Merck advised of the status of such patent filings and upon Merck's request, shall provide advance copies of any papers related to the filing, prosecution and maintenance of such patent filings, shall implement Merck's reasonable comments with respect thereto and shall promptly give notice to Merck of the grant, lapse, revocation, surrender, invalidation or abandonment of any such patent filings. If NGM does not elect to file or proposes to abandon any NGM Prosecuted Patents (including any Joint Patents), then it shall notify Merck (at least thirty (30) days prior to any filing or payment due date, or any other due date that requires action in order to avoid loss of rights, in connection with such Patent Rights) and Merck shall have the right to continue the preparation, filing, prosecution and maintenance of such Patent Rights at its sole expense. If Merck

assumes preparation, filing, prosecution and maintenance of any such Patent Rights pursuant to this Section 12.2.5, then NGM shall execute such documents and perform such acts, in a timely manner, at Merck's request and expense, as may be reasonably necessary to permit Merck to assume the preparation, filing, prosecution and maintenance of such Patent Rights.

12.3 Interference, Opposition, Reexamination and Reissue.

12.3.1 Each Party shall, within [*] of learning of such event, inform the other Party of any request for, or filing or declaration of, any interference, derivation proceeding, supplemental examination, post grant review proceeding, inter partes review proceedings, opposition, reissue or reexamination relating to NGM Patents, Collaboration Patents, NP201 Patents or Merck Collaboration Prosecuted Patents being prosecuted or maintained by such Party pursuant to Section 12.2. Merck and NGM shall thereafter consult and cooperate fully to determine a course of action with respect to any such proceeding. The non-prosecuting Party shall have the right to review and approve any submission to be made in connection with such proceeding.

12.3.2 Each Party shall not initiate any reexamination, derivation proceeding, supplemental examination, post grant review proceeding, inter partes review proceedings, interference or reissue proceeding relating to NGM Patents, Collaboration Patents, NP201 Patents or Merck Collaboration Prosecuted Patents being prosecuted or maintained by such Party pursuant to Section 12.2, to the extent such proceeding could be reasonably anticipated to have an impact on the license and rights granted under this Agreement, without the prior written consent of the other Party, which consent shall not be unreasonably withheld, conditioned or delayed.

12.3.3 The prosecuting Party shall keep the non-prosecuting Party informed of developments in any such action or proceeding, including, to the extent permissible by Law, consultation and approval of any settlement, the status of any settlement negotiations and the terms of any offer related thereto. Each Party shall bear the expense of any interference, opposition, re-examination or re-issue proceeding relating to Patent Rights being prosecuted or maintained by such Party pursuant to Section 12.2.

12.4 Enforcement and Defense of Patent Rights.

12.4.1 Each Party shall give the other Party notice, promptly after becoming aware, of any infringement of Collaboration Patents or NGM Patents that claim or cover Products, Program Compounds, Small Molecule Products or Small Molecule Collaboration Compounds (collectively, "**Collaboration Compound Patents**") or NP201 Patents, where such infringement concerns the manufacture, importation, use, offer for sale or sale of a Program Compound, Product, Small Molecule Collaboration Compound or Small Molecule Product in the Field in the Territory (a "**Licensed Infringement**"). Merck and NGM shall thereafter consult and cooperate fully to determine a course of action, including the commencement of legal action by either or both Merck and NGM, to terminate such Licensed Infringement. However, Merck, upon notice to NGM, shall have the first right to initiate and prosecute such legal action at its own expense and in the name of Merck and, if necessary, NGM, or to control the defense of any declaratory judgment action relating to such Licensed Infringement; provided, however, [*]. Merck shall promptly inform NGM if it elects not to exercise such first right and NGM shall thereafter have the right to either initiate and prosecute such action or to control the defense of such declaratory judgment action in the name of NGM and, if necessary, Merck. Each Party shall have the right to be represented by counsel of its own choice.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

12.4.2 In the event that Merck elects not to initiate and prosecute an action with respect to a Licensed Infringement as provided in Section 12.4.1, and NGM elects to do so, the costs of any agreed-upon course of action to terminate such Licensed Infringement, including the costs of any legal action commenced or the defense of any declaratory judgment, shall be borne solely by NGM; provided, however, that [*].

12.4.3 For any action to terminate any Licensed Infringement, in the event that the Party electing to initiate or prosecute such action in accordance with Section 12.4.1 is unable to initiate or prosecute such action solely in its own name, the other Party will join such action voluntarily and will execute and cause its Affiliates and Related Parties to execute all documents necessary for such Party to initiate litigation to prosecute and maintain such action. In connection with any such action, the Parties will cooperate fully and will provide each other with any information or assistance that either may reasonably request, at the expense of the requesting Party. Each Party shall keep the other informed of developments in any such action or proceeding, including, to the extent permissible by Law, consultation on and approval of any settlement, the status of any settlement negotiations and the terms of any offer related thereto.

12.4.4 Any recovery obtained by either or both Merck and NGM in connection with or as a result of any action to terminate any Licensed Infringement contemplated by this Section 12.4, whether by settlement or otherwise, shall be shared in order as follows:

(a) the Party that initiated and prosecuted the action shall recoup all of its costs and expenses incurred in connection with the action;

(b) the other Party shall then, to the extent possible, recover its costs and expenses incurred in connection with the action; and

(c) the amount of any recovery remaining shall be [*].

12.4.5 Subject to the foregoing provisions of this Section 12.4, as between the Parties, NGM shall have the sole right to take action with respect to any infringement of Patent Rights owned by NGM (including NP201 Patents, NGM Patents and Collaboration Patents that are not Collaboration Compound Patents), and the first right to take action with respect to Collaboration Patents that are jointly owned by the Parties and are not Collaboration Compound Patents and Merck shall have the sole right to take action with respect to any infringement of Patent Rights owned by Merck, in each case, that is not a Licensed Infringement.

12.4.6 NGM shall inform Merck of any certification regarding any NP201 Patent, NGM Patent or Collaboration Patent under which Merck is granted a license under Sections 3.1.1, 5.4, and 6.1.1 through 6.1.4, inclusive, that it has received pursuant to either 21 U.S.C. §§355(b)(2)(A)(iv) or (j)(2)(A)(vii)(IV) or its successor provisions or any similar provisions in a country in the Territory other than the US, in each case where the certification pertains to the potential sale of a Product or Small Molecule Product, and shall provide Merck with a copy of such certification within [*] of receipt. NGM's and Merck's rights with respect to the initiation and prosecution of any legal action as a result of such certification or any recovery obtained as a result of such legal action shall be as

defined in Sections 12.4.1 through 12.4.4; provided, however, that Merck shall exercise its first right to initiate and prosecute any action and shall inform NGM of such decision within [*] of receipt of the certification, after which time NGM shall have the right to initiate and prosecute such action. Regardless of which Party has the right to initiate and prosecute such action, both Parties shall, as soon as practicable after receiving notice of such certification, convene and consult with each other regarding the appropriate course of conduct for such action. The non-initiating Party shall have the right to be kept fully informed and participate in decisions regarding the appropriate course of conduct for such action, and the right to join and participate in such action.

12.5 **Patent Term Restoration**. The Parties shall cooperate with each other, including to provide necessary information and assistance as the other Party may reasonably request, in obtaining patent term restoration or supplemental protection certificates or their equivalents in any country in the Territory where NP201 Patents, NGM Patents and/or Collaboration Compound Patents exist, to the extent they relate to Program Compounds, Products, Small Molecule Collaboration Compounds or Small Molecule Products, as the case may be. In the event that elections with respect to obtaining such patent term restoration or supplemental protection certificates or their equivalents in any country in the Territory are to be made, Merck shall have the right to make the election with respect to NP201 Patents, NGM Patents and/or Collaboration Compound Patents that solely relate to Program Compounds, Products, Small Molecule Collaboration Compounds or Small Molecule Products. Subject to Merck's rights in the previous sentence, each Party shall have the right to make the election with respect to other Patent Rights owned by such Party. In each case the other Party agrees to abide by such election.

12.6 **Biosimilar or Interchangeable Biological Products**. Notwithstanding anything herein to the contrary, within [*] after the receipt of Marketing Authorization of a Product or Small Molecule Product that has been licensed in the US as a biological product under 42 U.S.C. 262(a) (or successor laws or regulations), and as may be amended from time to time thereafter, the Parties shall consult as to potential strategies with respect to unexpired US Patent Rights Controlled by either Party and that claim or cover the Product or Small Molecule Product. Specifically, in anticipation of a receipt by the Party who is the reference product sponsor of the Product or Small Molecule Product ("**Reference Product Sponsor**") of a biosimilar or interchangeable product application filed by a subsection (k) applicant pursuant to the Biologics Price Competition and Innovation Act of 2009 (Public Law 111-148) (or successor laws or regulations), the Parties will discuss the Reference Product Sponsor's likely course of action with regard to each such US Patent Right in the procedural steps set forth under 42 USC §262(l) (or successor laws or regulations), including a general plan for timely communication between the Parties in light of the statutory response deadlines.

12.7 **Joint Research Agreements**. The Parties agree to cooperate and to take reasonable actions to maximize the protections available under the safe harbor provisions of 35 U.S.C. 102(c) for US Patent Rights.

ARTICLE 13
TERM AND TERMINATION

13.1 **Term and Expiration**. This Agreement shall be effective as of the Effective Date and unless terminated earlier pursuant to Sections 13.2 or 13.4, this Agreement shall continue in full force and effect, on a Product-by-Product or Small Molecule Product-by-Small Molecule Product, as applicable, basis until expiration of the Royalty Term (for those Products and Small Molecule Products that are not NGM Optioned Products) or until Merck ceases to receive any

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Adjusted Net Sales (for NGM Optioned Products) hereunder with respect to such Product or Small Molecule Product (the "**Term**"). The Term shall expire on the date this Agreement has expired in its entirety with respect to all Products and Small Molecule Products in the Territory. Upon expiration of this Agreement on a Product-by-Product or Small Molecule Product-by-Small Molecule Product (but not as to any NGM Optioned Product), as applicable, basis, Merck's licenses pursuant to Sections 3.1.1, 5.4, or 6.1.1 through 6.1.4, inclusive, as applicable to such Product or Small Molecule Product, shall become a fully paid-up, perpetual and irrevocable license.

13.2 Unilateral Termination by Merck.

13.2.1 *No Early Termination of Research Program for Convenience*. Without limiting Section 13.3, Merck shall not have the right to terminate early the Research Program for convenience; it being understood that Merck shall not be obligated to extend the Research Program beyond the Initial Research Program Term.

13.2.2 *Termination of NP201 Program Only*. Notwithstanding anything contained herein to the contrary, Merck shall have the right at any time [*], to terminate this Agreement solely with respect to the NP201 Program by giving [*] advance written notice to NGM, which notice will indicate whether the termination is the result of a Safety Issue; provided, that, in the event that Merck indicates that such termination is the result of a Safety Issue, Section 13.7 shall apply. Any such termination shall not result in termination of the Research Program or Small Molecule Collaboration Program.

13.2.3 *Termination of Small Molecule Collaboration Program Only*. Notwithstanding anything contained herein to the contrary, Merck shall have the right at any time to terminate this Agreement solely with respect to any given Small Molecule Collaboration Product by giving [*] advance written notice to NGM. Any such termination shall not result in termination of the Research Program or NP201 Program or any other Small Molecule Collaboration Product.

13.2.4 *Termination of Optioned Products*. Merck shall have the right to terminate this Agreement with respect to all Optioned Compounds and Optioned Products associated with each particular Merck Option exercise (with or without cause) at any time [*], by giving: (i) [*] advance written notice to NGM where all such terminated Optioned Products are not NGM Optioned Products; and (ii) [*] advance written notice to NGM where any such Optioned Product is an NGM Optioned Product, in each case, which notice will indicate whether the termination is the result of a Safety Issue; provided, however, that, [in the event that Merck indicates that such termination is the result of a Safety Issue, Section 13.7 shall apply].

13.2.5 *Termination of Agreement in its Entirety*. At any time following expiration or termination (as provided for in this Article 13) of the Full Research Program Term, Merck shall have the right to terminate this Agreement in its entirety (with or without cause) at any time other than during the conduct of a Clinical Study with respect to any Program Compound or Product (except that Merck may terminate this Agreement in its entirety during the conduct of a Clinical Study if a Safety Issue arises during such study), by giving: (i) [*] advance written notice to NGM when no Optioned Product exists as of such time, or there is no NGM Optioned Product as of such time; and (ii) [*] advance written notice to NGM when there is one or more NGM Optioned Products existing as of such time, in each case, which notice will indicate whether the termination of this Agreement with respect to any given Optioned Product is the result of a Safety Issue; provided, that, in the event that Merck indicates that there exists a Safety Issue with respect to a particular Optioned Product terminated as a result of such termination in the entirety, Section 13.7 shall apply.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

13.3 **Termination of NP201 Program, Optioned Products or Small Molecule Collaboration Products by Merck for Cause**. Merck shall have the right to terminate this Agreement solely with respect to either the NP201 Program, or a given Optioned Product or Small Molecule Collaboration Product at any time during the Term of this Agreement upon written notice if NGM is in material breach of its obligations hereunder with respect to the NP201 Program or such Optioned Product or Small Molecule Collaboration Product, as applicable, and has not cured such breach within [*] after notice requesting cure of the breach; provided, however, in the event of a good faith dispute with respect to the existence of such a material breach relating to the NP201 Program or such Optioned Product or Small Molecule Collaboration Product, as applicable, the [*] cure period shall be tolled until such time as the dispute is resolved pursuant to Section 16.7. For clarity, this Agreement shall remain in full force and effect with respect to any subject matter that is not the subject of such termination.

13.4 Early Termination of Research Program by Merck. Notwithstanding anything contained herein to the contrary, Merck shall have the right to terminate the Research Program solely in the following events:

13.4.1 *Change of Control.* Upon [*] advance written notice to NGM, in the event of a Change of Control of NGM pursuant to Section 14.1; or

13.4.2 *Principal Investigator.* In the event Dr. Jin-Long Chen ceases to direct research at NGM, but only as and to the extent set forth in Section 4.6 during the Initial Research Term; or

13.4.3 *Breach.* In the event NGM is in breach of its material obligations under Article 4 with respect to the Research Program, and has not cured such breach within [*] after delivery to NGM of a notice of such material breach, and requesting cure of the breach; provided, however, in the event of a good faith dispute with respect to the existence of such a material breach, the [*] cure period shall be tolled until such time as the dispute is resolved pursuant to Section 16.7.

13.5 **Termination of NP201 Program, Optioned Products or Small Molecule Collaboration Products by NGM for Cause**. NGM shall have the right to terminate this Agreement solely with respect to either the NP201 Program or a given Optioned Product or Small Molecule Collaboration Product at any time during the Term of this Agreement, other than during the conduct of a Clinical Study with respect to the NP201 Program, Optioned Product or Small Molecule Collaboration Product, upon written notice if Merck is in material breach of its obligations hereunder with respect to the NP201 Program or such Optioned Product or Small Molecule Collaboration Product, as applicable, and has not cured such breach within [*] after notice requesting cure of the breach; provided, however, in the event of a good faith dispute with respect to the existence of such a material breach relating to the NP201 Program or such Optioned Product or Small Molecule Collaboration Product, as applicable, the [*] cure period shall be tolled until such time as the dispute is resolved pursuant to Section 16.7. For clarity, this Agreement shall remain in full force and effect with respect to any subject matter that is not the subject of such termination.

13.6 **Effect of Termination**. The Parties acknowledge and agree that to the extent this Agreement is only terminated with respect to a given program, compound, product and/or target, then the following effects of termination, as applicable, shall only apply with respect to such program, compound, product and/or target as is the subject of such termination.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

13.6.1 *Effect of Termination by Merck pursuant to Sections 13.3 (for NGM's breach).* The following provisions shall apply if Merck terminates for NGM's uncured material breach pursuant to Section 13.3. For clarity, the following provisions do not limit, and may be effective in conjunction with, Sections 13.6.6(c), (d) and (e), in the event that the Research Program is terminated in accordance with Section 13.4.3.

(a) Where such termination is with respect to the NP201 Program, it shall terminate effective upon such effective date of termination, and Merck shall have no obligation to pay for any External Costs or work performed by the NGM FTEs with respect to the NP201 Research Collaboration after the effective date of such termination including the Research Funding for the NP201 Research Collaboration after such date.

(b) All licenses and rights granted by Merck to NGM hereunder with respect to the NP201 Program or the terminated Optioned Product or Small Molecule Collaboration Product, as applicable, will terminate and such licenses and rights shall revert to Merck and NGM and its Affiliates and sublicensees shall have no further rights to use any Merck IP with respect thereto or to exercise any further NGM ANS Option with respect to the terminated Products, and any terminated Products or Small Molecule Products would be subject to the milestones and royalties set forth in Article 9, unless prior to such termination, NGM exercised an NGM ANS Option with respect to such terminated Product. For clarity, in the event that NGM has exercised one or more NGM ANS Options with respect to the terminated Products prior to the time of termination, such NGM ANS Options shall remain in effect; provided, however, that if NGM has also exercised any Co-Detailing Options with respect to the terminated NGM Optioned Products prior to the time of such termination, all such Co-Detailing Options shall be deemed terminated and of no further force or effect and NGM shall no longer have any right to Co-Detail any terminated NGM Optioned Product(s).

(c) Sections 3.1.1, 5.4, and 6.1.1 through 6.1.4, inclusive, shall survive and all other provisions of this Agreement applicable to such licenses, including Merck's payment obligations to NGM therefor, and any Collaboration Compounds or Products and Patent Rights related thereto shall survive; provided, however, that the Joint NP201 Committee, JEDC or JLDC, as applicable, shall no longer have within its purview any NP201 Compounds (in the case of termination with respect to the NP201 Program), Optioned Product (as to which such termination applies) or Small Molecule Collaboration Product (as to which such termination applies), as the case may be, depending upon which is being terminated, and Merck would not have any further reporting obligations with respect thereto to NGM except for: (i) applicable royalty reports, if any; and (ii) applicable reports pertaining to NGM Optioned Products. For clarity, the Joint NP201 Committee will terminate in the event that the NP201 Program is terminated.

(d) NGM shall, within thirty (30) days after the effective date of such termination of the NP201 Program, an Optioned Product or a Small Molecule Collaboration Product, as the case may be, return or cause to be returned to Merck all Information disclosed by Merck in tangible form, and all substances or compositions delivered or provided by Merck as well as any other material provided by Merck in any medium, in each case, related thereto.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

13.6.2 *Effect of Termination by Merck pursuant to Section 13.2.5 (for convenience, Agreement in its entirety) or by NGM pursuant to Section 13.5 (for Merck's breach).* The following provisions shall apply if Merck terminates this Agreement in its entirety for convenience pursuant to Section 13.2.5, or if NGM terminates this Agreement with respect to the NP201 Program, an Optioned Product or Small Molecule Collaboration Product for Merck's uncured material breach pursuant to Section 13.5; provided, however, that, in the event of any such termination of this Agreement in its entirety or by NGM pursuant to Section 13.5, Section 13.6.4 shall control with respect to any Small Molecule Collaboration Compounds and Small Molecule Compounds that are included in the subject of such termination.

(a) Where such termination occurs [*] in accordance with accepted pharmaceutical industry norms and ethical practices, of any then on-going Clinical Studies with respect to the Product subject to such termination, and the terms of Section 13.7 shall apply.

(b) All licenses and rights granted by NGM to Merck under this Agreement with respect to such terminated NP201 Program or Optioned Product(s), as applicable, will terminate and such licenses and rights shall revert to NGM (except for those licenses and rights, if any, that expressly survive any such termination hereunder, including those necessary for Merck to perform its obligations under this Section 13.6.2).

(c) [*].

(d) Merck shall transfer and assign to NGM or its designee (to the extent assignable and in accordance with Laws, and if not assignable, then Merck shall permit NGM or its designee to access in accordance with Laws) all of the then existing (as of the date of notice of termination) INDs, NDAs and Marketing Authorizations (if any) (together with a copy of all material documents submitted to the applicable Regulatory Authority in connection therewith for the [*]), in each case, that are owned by and in the possession of Merck or its Affiliates and that relate solely and exclusively [*], as applicable; provided, however, that NGM shall execute a letter releasing Merck and its Affiliates of all liabilities arising after the effective date of such assignment arising from the developing, using, manufacturing (including making and having made) and/or commercializing (including selling, offering for sale, importing and exporting) of [*]; provided, further, that NGM demonstrates that it holds, and will execute a letter, agreeing to continue to hold during the time it researches, develops and commercializes, and [*] thereafter, product liability insurance that is adequate to cover (and is consistent with normal business practices of prudent companies similarly situated) any product liability arising from such [*], as applicable. For the purposes of this Section 13.6.2(d) and Section 13.6.2(e) Marketing Authorizations shall exclude pricing approval and government reimbursement approvals.

(e) Notwithstanding the foregoing provisions of this Section 13.6.2, all of the foregoing (including any INDs, NDAs and other Marketing Authorizations, if any) provided by Merck pursuant to this Section 13.6.2 shall be provided on a one-time basis and on an "as is" basis (without any representations and warranties) and shall only be provided as they exist as of the effective date of termination.

(f) Merck shall deliver to NGM copies of, or otherwise make available to NGM, all clinical data and adverse event reports (including all such adverse event reports contained in Merck's or its Affiliates' regulatory and/or safety databases) owned by Merck or its Affiliates, which is in Merck's or its Affiliates' possession (and in the same form in which Merck or its Affiliates maintains such data or reports, as applicable), in each case, relating to the [*] and reasonably necessary for NGM to continue to conduct the research, development and/or commercialization of the [*], as applicable.

(g) Merck shall deliver to NGM, in the same form in which Merck maintains such items, copies of the material regulatory correspondence generated hereunder and owned by Merck or its Affiliates, which is in Merck's or its Affiliates' possession relating to the pre-clinical or clinical development of the Reversion Compounds or Reversion Products, as applicable.

(h) Subject to Section 13.6.2(k), Merck shall, at NGM's request, deliver to NGM all inventory (if any, and to the extent applicable) of GMP and non-GMP [*] and bulk [*] on an "as is" basis (without any representations and warranties) in the forms currently residing, as of such notice of termination, in Merck's inventory, in each case owned by Merck (or its Affiliate) and that is in Merck's (or its Affiliates) possession or control. In connection therewith, NGM shall pay to Merck, within thirty (30) days after invoice therefor, an amount equal to Merck's (or its Affiliate's, as applicable) fully allocated costs of goods sold for such inventory [*]; provided, however, that NGM covenants that it shall not use any non-GMP [*] and/or non-GMP [*] bulk in humans for any purpose, and provided, further, that NGM shall execute a letter releasing Merck from, and indemnifying Merck from and against, all liabilities arising from the use, sale or import of such transferred inventory of [*] and/or [*].

(i) To the extent [*] or [*], as applicable, were being manufactured by Merck (or its Affiliate) as of the time of termination, [*] (as applicable), until the earlier of: [*]; or (ii) [*]. [*] during the first [*] after the termination effective date. NGM shall have the right to sublicense the license under Section 13.6.2(c) to a manufacturer designated by NGM and reasonably acceptable to Merck with respect to the right to make and have made the Reversion Product and/or Reversion Compound for the purpose of NGM exercising the license granted to NGM under Section 13.6.2(c) and Merck shall promptly thereafter [*] and shall execute such additional documents as is reasonably necessary to effectuate the intent of the foregoing Section 13.6.2(i).

(j) No later than thirty (30) days after the effective date of such termination of this Agreement under Section 13.2.5 or Section 13.5, as applicable, each Party shall return or cause to be returned to the other Party all Information in tangible form received from the other Party and all copies thereof related to such terminated NP201 Program or Optioned Product, as the case may be; provided, however, that each Party may retain any Information reasonably necessary or useful for such Party's continued practice under any license(s) that survive or are granted upon such termination, and may keep one copy of Information received from the other Party in its confidential files for record purposes.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

(k) Notwithstanding the foregoing provisions of this Section 13.6.2, if Merck (or any of its Affiliates, sublicensees or distributors) is selling terminated Products as of the time of such termination of this Agreement, then the licenses set forth in Sections 3.1.1 and 5.4, as applicable, shall not terminate, but shall become non-exclusive and survive for a period of [*] in order for Merck and its Affiliates, sublicensees and distributors, at their discretion, during the [*] period immediately following the effective date of termination, to sell any terminated Products remaining in inventory (including to finish and sell any work-in-progress of such Products) in accordance with the terms of this Agreement (including amounts payable by Merck to NGM pursuant to Article 9), in each case utilizing such licenses.

(l) Merck shall assign all Product-specific trademarks used during the Term by Merck and its Related Parties solely and exclusively in connection with the sale or marketing of the [*] subject to such termination (the "[*]"), to NGM for use in connection with the sale or marketing of [*] in the Field in the Territory, effective as of the effective date of such termination of this Agreement; provided, however, that NGM may at its option reject such assignment in whole or in part. [*] shall not include rights to any trade name, trademark or trade dress of Merck or any of its Affiliates; provided, further, that NGM shall and hereby does grant Merck the right to use the [*] for its activities permitted in Section 13.6.2(k), for the six (6) month period referred to in Section 13.6.2(k).

(m) Notwithstanding the foregoing, Merck's [*] under Sections 13.6.2 (d) through (i), inclusive, shall pertain only to those [*] that have [*], as of the effective date of such termination.

13.6.3 *Effect of Termination of NP201 Program by Merck for convenience pursuant to Section 13.2.2*. The following provisions shall apply if Merck terminates the NP201 Program pursuant to Section 13.2.2 for convenience.

(a) Where such termination occurs [*] with respect to such terminated NP201 Compounds or NP201 Products. For clarity, other than termination in connection with a Safety Issue, Merck does not have the right to terminate the NP201 Program under Section 13.2.2 while a Clinical Study is on-going for any NP201 Product.

(b) All licenses and rights granted by NGM to Merck hereunder with respect to NP201 Compounds or NP201 Products will terminate and such licenses and rights shall revert to NGM (except for those licenses and rights that expressly survive any such termination hereunder).

(c) The terms and conditions of (including each Party's rights and obligations under) Sections 13.6.2(c) – (i), inclusive, and (k), (l) and (m) shall apply to all NP201 Compounds and to those NP201 Products that are [*], as applicable, *mutatis mutandis*.

13.6.4 *Effect of Termination by NGM pursuant to Section 13.5 (Merck breach) or by Merck pursuant to Section 13.2.3 or 13.2.5 (convenience) as such Termination Applies to Small Molecule Collaboration Products*. The following provisions shall apply if: (i) Merck terminates this Agreement with respect to a given Small Molecule Collaboration Product pursuant to Section 13.2.3 for convenience, or Merck terminates this Agreement in its entirety for convenience pursuant to Section 13.2.5; or (ii) NGM terminates a Small Molecule Collaboration Product pursuant to Section 13.5 for Merck's uncured Material Breach.

(a) Merck [*], in accordance with accepted pharmaceutical industry norms and ethical practices, of any then on-going Clinical Studies with respect to such terminated Small Molecule Collaboration Product.

(b) All licenses and rights granted by NGM to Merck hereunder with respect to such Small Molecule Collaboration Product will terminate and such licenses and rights shall revert to NGM.

(c) Notwithstanding the foregoing provisions of this Section 13.6.4, if Merck (or any of its Affiliates, sublicensees or distributors) is selling terminated Small Molecule Collaboration Products as of the time of such termination of this Agreement, then the licenses set forth in Sections 6.1.2 through 6.1.4, inclusive, shall not terminate, but shall become non-exclusive and survive for a period of [*] in order for Merck and its Affiliates, sublicensees and distributors, at their discretion, during the [*] period immediately following the effective date of termination, to sell any terminated Small Molecule Collaboration Products remaining in inventory (including to finish and sell any work-in-progress of such Small Molecule Collaboration Products) in accordance with the terms of this Agreement (including amounts payable by Merck to NGM pursuant to Article 9), in each case utilizing such licenses.

(d) For the avoidance of doubt, upon such termination of such Small Molecule Collaboration Product, Merck shall retain all rights to and interest in the Small Molecule Collaboration Products.

13.6.5 *Effect of Termination Regarding Optioned Products by Merck pursuant to Section 13.2.4*. The following provisions shall apply if Merck terminates this Agreement for convenience with respect to all Optioned Compounds and Optioned Products associated with a particular Merck Option pursuant to Section 13.2.4.

(a) Where such termination occurs [*], in accordance with accepted pharmaceutical industry norms and ethical practices, of any such on-going Clinical Study with respect to such terminated Optioned Product. For clarity, other than termination in connection with a Safety Issue, Merck does not have the right to terminate this Agreement under Section 13.2.4 while a Clinical Study is on-going

(b) All licenses and rights granted by NGM to Merck hereunder with respect to such terminated Optioned Product(s) will terminate and such licenses and rights shall revert to NGM (except for those licenses and rights that expressly survive any such termination hereunder).

(c) The terms and conditions of (including each Party's rights and obligations under) Sections 13.6.2(c) – (i), inclusive, and (k), (l) and (m) shall apply to all terminated Optioned Compounds and all terminated Optioned Product(s) that are [*], *mutatis mutandis*.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

13.6.6 *Effect of Termination of Research Program by Merck pursuant to Section 13.4*. The following provisions shall apply if Merck terminates early the Research Program pursuant to Section 13.4.

(a) In the event of termination by Merck following the occurrence of a Significant Event under Section 13.4.2: subject to Merck undertaking Early Development activities pursuant to Section 4.1.7, NGM shall continue to conduct all then-ongoing activities that are in Early Development with respect to all Collaboration Compounds, to the extent Merck elects to continue funding the same; and if Merck so elects to continue such funding, upon completion of the first POC Trial with respect to each such Collaboration Compound, the Merck Option rights, and obligations, under Article 5 would remain in effect, including all associated payment obligations with respect to the POC Compound and its Related Compounds, or, if Merck does not so elect to continue such funding (or if Merck elects to continue such funding but does not actually fund such activities), then, at its expense, and at its election, NGM shall be responsible for the conduct of any or all of such ongoing Clinical Studies under the Research Program, in which event Merck shall have no further rights, and no Merck Option shall exist, with respect to such Collaboration Compounds, which shall become Non-Qualifying Compounds. To the extent then-ongoing, all research activities that are not Early Development activities under the Research Program shall terminate effective upon such effective date of termination, and Merck shall have no obligation to pay for any External Costs or work performed by the NGM FTEs with respect to the Research Program after the effective date of such termination including the Research Funding for the Research Program after such date with respect thereto, and the licenses and rights granted by Merck to NGM in Section 4.1.8(a) will terminate and such licenses and rights shall revert to Merck and NGM and its Affiliates and sublicensees shall have no further rights to use any such Merck IP as contemplated by Section 4.1.8(a), except to the extent needed to conduct the activities set forth above in this Section 13.6.6(a).

(b) In the case of termination by Merck under Section 13.4.1 (NGM Change of Control): NGM shall be responsible, at Merck's expense and subject to subsection (g) below, upon Merck's election in writing, for transitioning any Clinical Studies then-being conducted under any Early Development activities under the Research Program to Merck or its designee, in which event the terms and conditions (including each Party's rights and obligations) of Sections 13.6.2(d) through (i), inclusive, shall apply to all such Development Candidates, *mutatis mutandis*, subject only to transfers and the like being provided by NGM to Merck (and not by Merck to NGM), or, where Merck does not so elect to have transitioned to it any such Clinical Studies, NGM shall be responsible for an orderly wind-down, in accordance with accepted pharmaceutical industry norms and ethical practices, of any such Clinical Studies or continuing any such Clinical Studies, at its own expense. Where Merck assumes the conduct of such Clinical Studies, upon completion of the first POC Trial with respect to any POC Compound, the Merck Option would remain in effect and be exercisable as set forth in Article 5, as though NGM had conducted such POC Trial, except that no Data Package shall be due from NGM with respect to such POC Trial, and Merck shall be required to exercise the Merck Option in the same timeframe as provided in Section 5.3.1,

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with such [*] period commencing once Merck has available to it the same information as would have been contained in the Data Package for such POC Compound. In addition, to the extent then-ongoing, all research activities that are not Clinical Studies under the Research Program shall terminate, effective upon such effective date of termination, unless Merck elects to proceed to effect a transfer of certain program activities pursuant to Section 14.2.1, and in any event Merck shall have no obligation to pay for any External Costs or such work performed by the NGM FTEs with respect to the Research Program after the effective date of such termination including the Research Funding for the Research Program after such date with respect thereto, and the licenses and rights granted by Merck to NGM in Section 4.1.8(a) will terminate and such licenses and rights shall revert to Merck and NGM and its Affiliates and sublicensees shall have no further rights to use any such Merck IP as contemplated by Section 4.1.8(a), except to the extent needed to conduct the activities set forth above in this Section 13.6.6(b).

(c) In the case of termination by Merck under Section 13.4.3 (NGM breach), to the extent then-ongoing, the Research Program shall terminate effective upon such effective date of termination, and Merck shall have no obligation to pay for any External Costs or work performed by the NGM FTEs with respect to the Research Program after the effective date of such termination including the Research Funding for the Research Program after such date and the licenses and rights granted by Merck to NGM in Section 4.1.8(a) will terminate and such licenses and rights shall revert to Merck and NGM and its Affiliates and sublicensees shall have no further rights to use any such Merck IP as contemplated by Section 4.1.8(a). In addition, NGM shall be responsible at its own expense, upon Merck's election in writing and subject to subsection (g) below, for transitioning any Clinical Studies then-being conducted under any Early Development activities under the Research Program to Merck or its designee, in which event the terms and conditions (including each Party's rights and obligations) of Sections 13.6.2(d) through (i), inclusive, shall apply to all such Development Candidates, *mutatis mutandis*, subject only to transfer and the like being provided by NGM to Merck (and not by Merck to NGM) or, (2) where Merck does not so elect to have transitioned to it any such Clinical Studies, NGM shall be responsible for an orderly wind-down, in accordance with accepted pharmaceutical industry norms and ethical practices, of any such Clinical Studies or continuing any such Clinical Studies, at its own expense. Where Merck assumes such Clinical Studies, upon completion of the first POC Trial with respect to any POC Compound, the Merck Option would remain in effect and be exercisable as set forth in Article 5 as though NGM had conducted such POC Trial, except that no Data Package shall be due from NGM with respect to such POC Trial, and Merck shall be required to exercise the Merck Option in the same timeframe as provided in Section 5.3.1, with such [*] period commencing once Merck has available to it the same information as would have been contained in the Data Package for such POC Compound, but NGM would no longer have available to it the NGM ANS Option with respect to such POC Compounds and they would be subject to the milestones and royalties set forth in Article 9.

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(d) Any Merck Options then-pending as of the effective date of any such termination (*i.e.*, after delivery of Data Package) would remain in effect for the length of the Option Period.

(e) NGM hereby grants to Merck a non-exclusive, royalty-free license, under any and all Patent Rights and Know-How that are Controlled by NGM or any of its Affiliates (subject to Section 14.3), solely for Merck to conduct such activities as may be undertaken by it pursuant to Section 13.6.6(a), (b) or (c), as applicable. Merck may grant sublicenses of the license set forth in this Section 13.6.6(e) to Third Parties who are acting on Merck's behalf in the conduct of such activities; provided, however, that: (A) each such sublicense is in writing and is consistent with the applicable terms of this Agreement; (B) each such sublicense terminates upon the termination of this Agreement; and (C) each sublicense solely permits the use of such sublicensed Patent Rights and Know-How within the scope of the license granted by NGM pursuant to this 13.6.6(e). For the avoidance of doubt: (i) the license set forth in this 13.6.6(e) does not include any right to sell products to Third Parties; and (ii) Merck may not use the NGM intellectual property rights licensed under this Section 13.6.6(e) other than to perform the activities as may be undertaken by it pursuant to Section 13.6.6(a), (b) or (c), as applicable.

(f) All licenses then granted to Merck under Section 5.4 to Optioned Compounds and Optioned Products, under Section 3.1 to NP201 Compounds and NP201 Products, under Section 6.1 with respect to Small Molecule Collaboration Compounds and Small Molecule Products, and under Section 14.2.1, to the extent applicable, shall survive and continue unaffected under this Agreement.

(g) In the event that Merck has elected to assume the conduct of Clinical Studies under either Section 13.6.6(b) or (c) above, but terminates Development of the applicable Collaboration Compounds prior to completion of the first POC Trial, such Collaboration Compounds shall become Non-Qualifying Compounds.

13.6.7 *Survival.* Subject to the remainder of this Section 13.6.7, all rights and obligations of the Parties hereunder shall terminate as of the date of expiration or termination of this Agreement, but such expiration or termination shall not relieve the Parties of any obligation accruing upon or prior to such termination. Any expiration or termination of this Agreement shall be without prejudice to the rights of either Party against the other accrued or accruing under this Agreement upon or prior to termination. The provisions of Articles 1 (to the extent necessary to give meaning to other surviving provisions), Article 10 (for a period of ten (10) years from the effective date of such expiration or termination), 9 (with respect to Merck, those payments accrued before the date of expiration or termination, and with respect to NGM, those payments due under Section 9.7), 15 and 16 and Sections 4.2.6 (for a period of [*] from the effective date of such expiration or termination), 4.4.3, 4.8.3, 5.3.2, 5.6 (to the extent applicable), 5.7 (subject to NGM's payment of amounts due under and in accordance with Section 9.7), 8.5, 11.3, 12.1.1, 12.1.2, 12.1.4 (second sentence only), 12.2.3, 12.2.4 (only with respect to Joint Collaboration Patents), 12.2.5 (only with respect to Joint Collaboration Patents), 13.1 (last sentence only), 13.6 (to the extent applicable and subject to the final sentence of this Section 13.6.7), and 14.4.2(b) shall survive the expiration or termination of this Agreement, and all definitions relating to the foregoing, shall survive any termination of this Agreement. Without limiting the foregoing, promptly following any termination or expiration of this Agreement with respect to the NP201 Program, or the Research Program, or both, NGM shall pay to Merck any advanced Research Funding that is not used as of the effective date of such expiration or termination. For clarity, to the extent this Agreement is only terminated with respect to a given program, compound, product and/or target, then the foregoing Section 13.6.7 (including the surviving rights and obligations, including

particular Articles or Sections of this Agreement, that survive a given termination, as applicable) shall only apply with respect to such program, compound, product and/or target as is the subject of such termination.

13.6.8 *Effect on Advanced Amounts of Termination by Merck for NGM Breach.* Only in the event that Merck terminates this Agreement pursuant to Section 13.3 for uncured material breach by NGM with respect a particular NGM Optioned Product and as of the time of such termination, there exist no other NGM Optioned Products then notwithstanding Section 7.5.2, NGM shall be obligated to pay to Merck all outstanding Advanced Amounts (and all accrued interest thereon) in [*] installments over the [*] period following the effective date of such termination; provided, however, that if, after NGM has commenced repaying Merck the outstanding Advanced Amounts in accordance with the foregoing, there exists an NGM Optioned Product, then NGM shall be entitled to cease repaying the Advanced Amounts in accordance with the foregoing and Merck shall thereafter seek recoupment of the remaining unpaid Advanced Amounts (and all accrued interest thereon) in accordance with Section 7.5.2 (*i.e.,* out of NGM's share of future Adjusted Net Sales from such NGM Optioned Product as well as NGM's share of future Adjusted Net Sales from any and all other Products as to which NGM has exercised the NGM ANS Option) for so long as there remains an NGM Optioned Product. For clarity, if Merck terminates this Agreement for convenience for any or all NGM Optioned Products or this Agreement expires or terminates for any other reason, NGM shall *not* be obligated to pay to Merck any outstanding Advanced Amounts as a result of such termination or expiration, it being understood that all Advanced Amounts are provided to NGM on a non-recourse basis, and except as provided in the first sentence of this Section 13.6.8 or in Section 14.2.3, are only to be recouped by Merck in accordance with Section 7.5.2 and/or Section 7.5.5, as applicable, out of Adjusted Net Sales of any NGM Optioned Products.

13.7 **Safety Issues**. Notwithstanding the foregoing, as used in this Agreement, a [*] and any rights granted thereto to NGM shall not include any Program Compound or Product the Development or Commercialization of which, as of the effective date of termination hereunder, has been terminated in its entirety by Merck for any Safety Issue, except as provided in the last sentence of this Section 13.7; provided, that, with respect to any Program Compound or Product terminated by Merck for a Safety Issue, if NGM desires nonetheless to pursue such terminated Program Compound or Product in a different manner or in a different form than that pursued by Merck, the Parties shall discuss the feasibility of repurposing such Program Compound or Product in such a way as to address the Safety Issue and NGM shall have the right to pursue such alternative development of such Program Compound or Product subject to Merck's consent, not to be unreasonably withheld, conditioned or delayed. For clarity, where a termination occurs during the [*] in accordance with all Laws and Merck's standard practices in such circumstances.

ARTICLE 14
CHANGE OF CONTROL; ACQUISITIONS

14.1 **Change of Control of NGM**. In the event that there is *any* Change of Control of NGM or an NGM Affiliate that Controls any of the NGM IP or NP201 IP or other assets required for the Collaboration (including Collaboration Technology), then NGM shall provide written notice to Merck at least [*] prior to the closing of such Change of Control and Merck shall have the one-time right, at Merck's election, upon written notice at any time during the [*] after the closing of such Change of Control, to unilaterally terminate the Full Research Program Term and the Research Program, as set forth in Section 13.4.1, in its entirety or with respect to one or more Collaboration Targets (and related Collaboration Compounds).

14.2 Competitive Changes of Control.

14.2.1 *Competing Pharma Change of Control of NGM*. In addition to Merck's right under Sections 14.1, 14.2.2 and 14.4, as applicable, in the event only of a Competing Pharma Change of Control, Merck shall have the one-time right, at Merck's election, upon written notice at any time during the [*] after the closing of such Competing Pharma Change of Control, to unilaterally implement some or all of the following revisions to this Agreement:

(a) Program Transfer. If Merck elects to terminate the Research Program as provided in Section 14.1 upon [*], then Merck shall have [*]. If, in addition, in such case Merck desires to [*]. Promptly following Merck's provision of such notice, [*]. Any such Research Program Development Candidate that [*]. In furtherance of the foregoing, NGM [*]. For clarity, [*].

(b) No Additional Payment of Advances. Merck may determine that no further Advanced Amounts shall be provided to NGM or its Acquiror for any NGM Optioned Products as of such time or any NGM Optioned Products arising in the future;

(c) Payment of Existing Advances. Merck may require that NGM or its successor in interest resulting from such Competing Pharma Change of Control repay any then-outstanding Advanced Amounts (and all accrued interest thereon) in [*] installments over the [*] period following the closing of such Competing Pharma Change of Control;

(d) Co-Detailing Rights. Merck may Terminate NGM's Co-Detailing rights under Section 7.8.2; provided, however, that if the Competing Pharma Change of Control occurs after First Commercial Sales in the Co-Detailing Territory, such termination would be subject to reasonable (in no event less than [*]) wind-down of NGM's Co-Detailing activities;

(e) Committee Participation. Merck may terminate and/or restrict NGM's participation on the Joint NP201 Committee, JRC, JEDC, JLDC, JCC or any other joint committee under this Agreement; and

(f) Information. Merck may limit its obligations to provide NGM with any Information regarding the Development, manufacture or Commercialization of Products and Small Molecule Products in the Territory, to annual high level summary reports, and which Information shall remain subject to the confidentiality provisions of Article 10, which high level summary reports will henceforth be substituted for any royalty report under Section 9.8 or calculation of Adjusted Net Sales with respect to any NGM Optioned Product. In addition, Merck may limit NGM's rights to review any such high level summaries and reports to senior levels within NGM.

14.2.2 *Competitive Product Acquisition*. In addition to Merck's right under Sections 14.1, 14.2.1 and 14.4, as applicable, if NGM (or its Affiliates) acquires a Third Party that is, or in the event of a Change of Control involving NGM (or any of its Affiliates) where the Acquiror (or any of its Affiliates) is, researching, developing, commercializing,

manufacturing or otherwise has any rights to any compound that Modulates an Optioned Target in a manner that satisfies the applicable Physiologically Relevant Threshold and belongs to the same Modulation Category as the Optioned Compound(s) with respect to such Optioned Target, Merck shall have the right, at Merck's election, upon written notice at any time during the [*] after the closing of such acquisition or Change of Control, as applicable, to unilaterally implement some or all of the following revisions to this Agreement with respect to such Optioned Target (and the applicable Modulation Category); provided, however, that if NGM or such Acquiror (and its Affiliates), as applicable, elects within thirty (30) days following the date of such acquisition or Change of Control, as applicable, to terminate (and certifies to Merck in writing of such termination and thereafter does in fact terminate) its activities with respect to the research, development, commercialization and manufacture of such compound that Modulates such Optioned Target as described above, then: (1) Merck shall have no right to implement any of the following with respect to such Optioned Target (and the applicable Modulation Category); and (2) NGM or such Acquiror (and its Affiliates), as applicable, would thereafter be bound by the terms of Section 5.6 (notwithstanding anything to the contrary therein) with respect to such Optioned Target (and the applicable Modulation Category):

(a) No Additional Payment of Advances. Merck may determine that no further Advanced Amounts shall be provided to NGM or its Acquiror for any NGM Optioned Products associated with such Optioned Target (and the applicable Modulation Category) as of such time or any NGM Optioned Products associated with such Optioned Target (and the applicable Modulation Category) arising in the future;

(b) Payment of Existing Advances. Merck may require that NGM or such Third Party repay any then-outstanding Advanced Amounts (and all accrued interest thereon) for any NGM Optioned Products associated with such Optioned Target (and the applicable Modulation Category) in [*] installments over the [*] period following the closing of such acquisition;

(c) Co-Detailing Rights. Merck may Terminate NGM's Co-Detailing rights under Section 7.8.2 with respect to any NGM Optioned Products associated with such Optioned Target (and the applicable Modulation Category); provided, however, that if such acquisition occurs after First Commercial Sales in the Co-Detailing Territory, such termination would be subject to reasonable (in no event less than [*]) wind-down of NGM's Co-Detailing activities with respect to such NGM Optioned Products;

(d) Committee Participation. Merck may terminate and/or restrict NGM's participation on the Joint NP201 Committee, JRC, JEDC, JLDC, JCC or any other joint committee under this Agreement as such participation pertains to such Optioned Target and any NGM Optioned Products associated with such Optioned Target (and the applicable Modulation Category); and

(e) Information. Merck may limit its obligations to provide NGM with any Information regarding the Development, manufacture or Commercialization of such Optioned Target and any NGM Optioned Products associated with such Optioned Target (and the applicable Modulation Category), to annual high level summary reports, and which Information shall remain subject to the confidentiality provisions of Article 10, which high level summary reports will henceforth be substituted for any royalty report under Section 9.8 or calculation of Adjusted Net Sales with respect to any applicable NGM Optioned Product. In addition, Merck may limit NGM's rights to review any such high level summaries and reports to senior levels within NGM.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

14.2.3 *Sensitive Information.* In both cases described in Sections 14.2.1 and 14.2.2, upon the written request of Merck, the Parties, including NGM's Acquiror, shall enter into good faith discussions regarding the adoption and implementation of reasonable procedures to be agreed upon in writing to restrict access to Confidential Information of Merck that is related to: (i) in the case of Section 14.2.1, the Development and Commercialization of Compounds, Products, Small Molecule Collaboration Compounds and Small Molecule Products; or (ii) in the case of Section 14.2.2, the relevant Optioned Target and any NGM Optioned Products associated with such Optioned Target (and the applicable Modulation Category) (collectively, as applicable, "**Sensitive Information**") to those personnel of NGM having had access to and knowledge of Sensitive Information prior to the Competing Pharma Change of Control or acquisition, as applicable, except to the extent reasonably necessary for NGM and its Affiliates to continue to exercise its rights or perform its obligations under this Agreement or as required by Law. If the Parties do not implement such reasonable procedures within ninety (90) days of negotiation, then Merck shall not be required to disclose any additional Sensitive Information to NGM after such ninety (90) day period, except for royalty reports owed pursuant to Section 9.8. The purposes of such procedures shall be to prohibit the use of Sensitive Information for competitive reasons against Merck and its Related Parties and Compounds or Products, including the development or commercialization of competing products.

14.3 **Change of Control and Effect on Licensed Intellectual Property, Collaboration Compounds and Collaboration Targets**. If either Party (or, in the case of NGM, any Affiliate of NGM that Controls any of the NGM IP or any NP201 IP or other assets required for the Collaboration (including Collaboration Technology)) undergoes a Change of Control with a Third Party (such Third Party, hereinafter referred to as an "**Acquiror**"), then: (a) the intellectual property of such Acquiror held or developed by such Acquiror (whether prior to or after such acquisition), shall be excluded from the Merck IP (and [*]) and NGM IP, NP201 IP and any other intellectual property licensed to the other Party; (b) the antibodies, peptides, other large molecules and small molecules discovered or identified by such Acquiror (whether prior to or after such acquisition) shall be excluded from the Collaboration Compounds; and (c) the human DNA sequences, RNA sequences, proteins and peptides identified and the subject of research under and/or validated by such Acquiror (whether prior to or after such acquisition) shall be excluded from the Collaboration Targets; provided, however, that no Collaboration Technology, Merck IP, NGM IP or NP201 IP may be used in conjunction with any of the foregoing (a), (b) or (c), and should any Collaboration Technology, Merck IP, NGM IP or NP201 IP be used in conjunction with any of the foregoing (a), (b) or (c), then the relevant subject matter of (a), (b) or (c), as applicable, shall be deemed excluded from this Section 14.3 and such subject matter shall be treated in a manner consistent with any other intellectual or property rights of a Party hereunder (*e.g.*, potentially subject to license to the other Party). For clarity, this Section 14.3 shall have no effect on: (i) the intellectual property rights Controlled immediately prior to the date of such Change of Control by a Party or by any Person that is an Affiliate of a Party immediately prior to the date of such Change of Control; (ii) the antibodies, peptides, other large molecules and small molecules discovered or identified prior to the date of such Change of Control by a Party or by any Person that is an Affiliate of a Party immediately prior to the date of such Change of Control; or (iii) the human DNA sequences, RNA sequences, proteins and peptides identified and the subject of research under and/or validated prior to the date of such Change of Control by a Party or by any Person that is an Affiliate of a Party immediately prior to the date of such Change of Control.

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14.4 Certain Competitive Acquisitions of or by a Party. Without limiting Sections 14.1, 14.2 and 14.3:

14.4.1 *NP201 Program.* If, during the NP201 Research Term, either Party (or its Affiliates) acquires a Third Party that is, or in the event of a Change of Control involving a Party where the Acquiror (or any of its Affiliates) is, researching, developing, manufacturing or otherwise has any rights to any compound that Modulates NP319 then the acquiring Party (or acquired Party, as applicable) will within [*] after the acquisition: (i) provide the other Party with data demonstrating that all of the antibodies, peptides or other large molecule or small molecule compounds in such program do not meet the Activity Threshold, in which case such Party may continue such program independent of this Agreement; (ii) notify the other Party in writing that it is deeming the antibodies, peptides and other large molecule and small molecule compounds in such program that activate or agonize NP319 alone or together with its co-receptor(s) at the Activity Threshold to be NP201 Compounds and the relevant intellectual property and technology of such Third Party, solely with respect thereto, to be Collaboration Technology, in which case such antibodies, peptides or other large molecule or small molecule compounds shall be deemed for all purposes under this Agreement to be Collaboration Compounds, subject to the milestones, royalties and other payments that accrue thereon under this Agreement in the event Merck exercises the Merck Option with respect thereto, and subject in such event to the NGM Option with respect thereto (as and to the extent available with respect to such Collaboration Compound); or (iii) notify the other Party in writing that it is planning to divest such program; provided, however, that if such program is not divested within [*] thereafter, then subsection (ii) will apply to such program unless such Party discontinues such program until the end of the NP201 Research Term and provides written notice thereof to the other Party before the end of such [*] period. For clarity, this Section 14.4.1 solely applies, to the extent applicable, to Third Party programs existing at the time of the relevant acquisition or Change of Control.

14.4.2 *Research Program and Tail Period.*

(a) If, during the Research Program Term or the Tail Period, NGM (or its Affiliates) acquires a Third Party that is, or in the event of a Change of Control involving NGM (or any of its Affiliates) where the Acquiror (or any of its then-Affiliates) is, researching, developing, manufacturing or otherwise has any rights to any compound that Modulates a Collaboration Target that has reached a stage that [*] (for clarity, if such program has not reached such stage, then Section 14.4.2(c) shall control), then the Acquiror (or NGM, as applicable) will within [*] after the effective date of such Change of Control or acquisition, as applicable, be required to elect one of the following: (i) provide Merck with data demonstrating that [*] or [*] that [*], in which case the Acquiror (or NGM, as applicable) may continue such program independent of this Agreement; (ii) notify Merck in writing that it is deeming [*] and [*], in which case such antibodies, peptides or other large molecule or small molecule compounds shall be deemed for all purposes under this Agreement to be Collaboration Compounds, subject to the milestones, royalties and other payments that accrue thereon under this Agreement in the event Merck exercises the Merck Option with respect thereto, and subject in such event to the NGM Option with respect thereto (as and to the extent available with respect to such Collaboration Compound); (iii) notify Merck in writing that it is

planning to divest such program (provided, however, that if such program is not divested within [*] thereafter, then subsection (ii) will apply to such program unless the Acquiror (or NGM, as applicable) discontinues such program until the end of the Research Program Term and the Tail Period, if any, and provides written notice thereof to Merck before the end of such [*] period); or (iv) notify Merck in writing that NGM will, and hereby does, transfer to Merck, in accordance with Section 14.4.2(b), all Collaboration Compounds that Modulate such Collaboration Target that is then subject to the obligations of Section 4.5.1 or Section 4.5.2, in a manner that satisfies the applicable Physiologically Relevant Threshold (collectively, "**Transferred Compounds**"). Notwithstanding the foregoing, if any Collaboration Target referred to above in this Section 14.4.2(a) is one as to which NGM has not conducted or had conducted on its behalf any research or Development activities during the [*] prior to the effective date of a Change of Control of, or acquisition by, NGM of a Third Party, as demonstrated by competent written proof to Merck within [*] of such Change of Control of, or acquisition by, NGM of such Third Party, and provided that any such Collaboration Target [*], upon NGM's request, Merck shall meet and discuss such "abandoned" Collaboration Target, and the terms and conditions under which such Acquiror and/or NGM may pursue independent of the Collaboration, any antibodies, peptides or other large molecule or small molecule compounds that Modulate such abandoned target.

(b) In furtherance of the foregoing Section 14.4.2(a)(iv), to the extent that the Acquiror (or NGM, as applicable) elects to proceed under Section 14.4.2(a)(iv):

(i) NGM shall, and hereby does (and NGM shall cause its Affiliates to, and on their behalf hereby does), assign to Merck, or its designee, all Transferred Compounds and all Know-How and Patents Rights Controlled by NGM or its Affiliates immediately prior to the closing of such acquisition or Change of Control, as applicable, that solely relate to the Transferred Compounds and products containing or comprising Transferred Compounds ("**Transferred Products**");

(ii) to the extent the Know-How and Patents Rights Controlled by NGM or its Affiliates immediately prior to the closing of such acquisition or Change of Control, as applicable, relate to both the Transferred Compounds and other subject matter, NGM hereby grants Merck, on behalf of NGM and any such Affiliates, a fully-paid up, irrevocable and perpetual, sublicenseable and transferrable license under and with respect to such Know-How and Patent Rights to: (1) research, Develop, use and manufacture (including making and having made) Transferred Compounds and Transferred Products in the Field in the Territory; and (2) Commercialize (including sell, offer for sale, import and export) Transferred Compounds and Transferred Products in the Field in the Territory;

(iii) the Research Program shall terminate with respect to Transferred Compounds and Transferred Products, and Merck shall have no obligation to pay for any External Costs or work performed by the NGM FTEs with respect to the relevant portion of the Research Program after the effective date of such transfer including the Research Funding for the

relevant portion of the Research Program after such date and the relevant portion of the licenses and rights granted by Merck to NGM in Section 4.1.8(a) will terminate and such licenses and rights shall revert to Merck and NGM and its Affiliates and sublicensees shall have no such further rights to use any such Merck IP as contemplated by Section 4.1.8(a). In addition, NGM shall be responsible at its own expense, upon Merck's election in writing, for transitioning any Clinical Studies then-being conducted on the Transferred Compounds under any Early Development activities under the Research Program to Merck or its designee, in which event the terms and conditions (including each Party's rights and obligations) of Sections 13.6.2(d) through (i), inclusive, shall apply to all such Transferred Compounds, *mutatis mutandis*, subject only to transfer and the like being provided by NGM to Merck (and not by Merck to NGM); and

(iv) NGM shall have no further rights or interests in the Transferred Compounds or Transferred Products, including no right to: (1) receive any royalties or milestones or other amounts in connection with any Transferred Compounds or Transferred Products (or to exercise any NGM ANS Option with respect to any Transferred Compounds or Transferred Products); (2) receive any reports regarding any Transferred Compounds or Transferred Products; or (3) subject any Transferred Compounds or Transferred Products to any committee oversight.

(c) If, during the Research Program Term or the Tail Period, NGM (or its Affiliates) acquires a Third Party that is, or in the event of a Change of Control involving NGM (or any of its Affiliates) where the Acquiror (or any of its Affiliates immediately prior to the date of such acquisition or Change of Control) is, researching, developing, manufacturing or otherwise has any rights to any compound that Modulates a Collaboration Target and [*] has not reached a stage that [*], then the Acquiror shall not be subject to the obligations set forth in Section 4.5.1 and Section 4.5.2 solely with respect to those antibodies, peptides or other large molecule or small molecule compounds that: (A) [*]; and (B) [*]; provided, however, that NGM and such Acquiror (or the relevant Affiliates of such Persons) promptly following the effective date of such Change of Control establish and enforce internal processes and procedures to strictly segregate the research and development of such antibodies, peptides or other large molecule or small molecule compounds from those being researched and Developed under the Research Program; provided, further, that (i) no Collaboration Technology, Merck IP, NGM IP or NP201 IP may be used by such Acquiror (or any of its Affiliates immediately prior to the date of such acquisition or Change of Control), or its employees, contractors or other agents, nor shall any such Persons receive, obtain or otherwise be provided with, or have access to or have any right to use, any Collaboration Technology, Merck IP, NGM IP or NP201 IP. In furtherance of the foregoing, NGM shall maintain security practices, including appropriate administrative, physical and technical safeguards, including underlying operating system and network security controls and other firewalls, which are reasonably acceptable to Merck and that are designed to ensure that Collaboration Technology, Merck IP, NGM IP and NP201 IP is not accessed by, used by, received by, obtained by or otherwise provided to, such Acquiror (or any of its Affiliates immediately prior to the date of such acquisition or Change of Control), or its employees, contractors or other agents. Notwithstanding the foregoing Section 14.4.2(c), at NGM's option, NGM or such Acquiror may subject any program that would otherwise be subject to this Section 14.4.2(c) to Section 14.4.2(a) (and by extension Section 14.4.2(b), to the extent applicable).

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(d) For clarity, this Section 14.4.2 solely applies, to the extent applicable, to Third Party programs existing at the time of the relevant acquisition or Change of Control, and does not apply to any Optioned Target (which is addressed under Section 14.2.2).

14.4.3 *No Prohibition.* For clarity, nothing in this Agreement shall prohibit NGM or Merck from undergoing any Change of Control.

ARTICLE 15
INDEMNIFICATION; LIMITATION ON LIABILITY

15.1 **Indemnification by Merck**. Merck hereby agrees to indemnify, hold harmless and defend NGM, its Affiliates and their respective officers, directors, agents, employees, successors and assigns (collectively, the "**NGM Indemnified Parties**") against any and all losses, costs, expenses, fees or damages arising out of or relating to claims, allegations, suits, actions or proceedings asserted by any Third Party, whether governmental or private, arising out of or relating to: (i) the breach of any of Merck's covenants, representations or warranties under this Agreement; (ii) the research, development, manufacture, use, sale or other disposition of any Program Compound (but excluding any Program Compound contained in or comprising an NGM Optioned Product from and after the date of NGM's exercise of the NGM ANS Option with respect to such NGM Optioned Product), Product (but excluding any NGM Optioned Product from and after the date of NGM's exercise of the NGM ANS Option with respect to such NGM Optioned Product), Small Molecule Collaboration Compound or Small Molecule Product by or on behalf of Merck or its Related Parties (except, for clarity, NGM and its Affiliates); or (iii) the negligence or willful misconduct by Merck, its Related Parties or their respective officers, directors, agents or employees, in performing any obligations under this Agreement; provided, however, that Merck shall not be required to indemnify, hold harmless or defend any NGM Indemnified Party against any claim to the extent that NGM has an obligation to indemnify the Merck Indemnified Parties under Section 15.2(i) or (iii) or Section 13.6.2(h).

15.2 **Indemnification by NGM**. NGM agrees to indemnify, hold harmless and defend Merck, its Affiliates and their respective officers, directors, agents, employees, successors and assigns (collectively, the "**Merck Indemnified Parties**") against any and all losses, costs, expenses, fees or damages arising out of or relating to claims, allegations, suits, actions or proceedings asserted by any Third Party, whether governmental or private, arising out of or relating to: (i) the breach of any of NGM's covenants, representations or warranties under this Agreement; (ii) the research, development, manufacture, use, sale or other disposition of any Program Compound (but excluding any Program Compound contained in or comprising an NGM Optioned Product from and after the date of NGM's exercise of the NGM ANS Option with respect to such NGM Optioned Product), Product (but excluding any NGM Optioned Product from and after the date of NGM's exercise of the NGM ANS Option with respect to such NGM Optioned Product), Excluded Compound, [*] or [*] by or on behalf of NGM or its Affiliates or licensees (except, for clarity, Merck and its Affiliates), or Refused Candidate or Non-Qualifying Compound; (iii) the negligence or willful misconduct by NGM, its Affiliates or their respective officers, directors, agents or employees, in performing any obligations under this Agreement; or (iv) the Existing Collaboration Agreements, including any amounts that may be payable by NGM in connection therewith; provided, however, that NGM shall not be required to indemnify, hold harmless or defend any Merck Indemnified Party against any claim to the extent that Merck has an obligation to indemnify the NGM Indemnified Parties under Section 15.1(i) or (iii).

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15.3 **Procedure.** If either Party is seeking indemnification under Section 15.1 or 15.2 (the "**Indemnified Party**"), it shall inform the other Party (the "**Indemnifying Party**") of the claim giving rise to the obligation to indemnify pursuant to such Section as soon as reasonably practicable after receiving notice of the claim (provided, however, any delay or failure to provide such notice shall not constitute a waiver or release of, or otherwise limit, the Indemnified Party's rights to indemnification under, as applicable, Section 15.1 or 15.2, except to the extent that such delay or failure materially prejudices the Indemnifying Party's ability to defend against the relevant claims). The Indemnifying Party shall have the right to assume the defense of any such claim for which it is obligated to indemnify the Indemnified Party. The Indemnified Party shall cooperate with the Indemnifying Party and the Indemnifying Party's insurer as the Indemnifying Party may reasonably request, and at the Indemnifying Party's cost and expense. The Indemnified Party shall have the right to participate, at its own expense and with counsel of its choice, in the defense of any claim or suit that has been assumed by the Indemnifying Party. The Indemnifying Party shall not settle any claim without the prior written consent of the Indemnified Party, not to be unreasonably withheld, conditioned or delayed. The Indemnified Party shall not settle or compromise any such claim without the prior written consent of the Indemnifying Party, which it may provide in its sole discretion. If the Parties cannot agree as to the application of Section 15.1 or 15.2 to any claim, pending resolution of the dispute pursuant to Section 16.7, the Parties may conduct separate defenses of such claims, with each Party retaining the right to claim indemnification from the other Party in accordance with Section 15.1 or 15.2 upon resolution of the underlying claim.

15.4 **LIMITATION OF LIABILITY**. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, PUNITIVE, OR INDIRECT DAMAGES (INCLUDING LOST PROFITS) ARISING FROM OR RELATING TO THIS AGREEMENT (INCLUDING BREACH OF THIS AGREEMENT) OR THE EXERCISE OF ITS RIGHTS HEREUNDER, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING THE FOREGOING, NOTHING IN THIS SECTION 15.4 IS INTENDED TO AND SHALL NOT LIMIT OR RESTRICT (1) THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF ANY PARTY UNDER SECTION 15.1 OR 15.2 OR (2) DAMAGES AVAILABLE FOR A PARTY'S BREACH OF ITS CONFIDENTIALITY OBLIGATIONS UNDER ARTICLE 10.

15.5 **Insurance**. Each Party shall procure and maintain insurance, including product liability insurance (or self-insure but solely with respect to Merck), adequate to cover its obligations hereunder and that is consistent with normal business practices of prudent companies similarly situated. It is understood that such insurance shall not be construed to create a limit of either Party's liability with respect to its indemnification obligations under this Article 15 or otherwise. Each Party shall provide the other Party with written evidence of such insurance upon request. Each Party shall provide the other Party with written notice at least thirty (30) days prior to the cancellation, non-renewal or material change in such insurance or self - insurance that materially adversely affects the rights of the other Party hereunder.

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ARTICLE 16
MISCELLANEOUS

16.1 **Force Majeure**. Neither Party shall be held liable to the other Party nor be deemed to have defaulted under or breached this Agreement for failure or delay in performing any obligation under this Agreement to the extent such failure or delay is caused by or results from causes beyond the reasonable control of the affected Party, potentially including embargoes, war, acts of war (whether war be declared or not), acts of terrorism, insurrections, riots, civil commotions, strikes, lockouts or other labor disturbances, fire, floods or other acts of God, or acts, omissions or delays in acting by any governmental authority or the other Party. The affected Party shall notify the other Party of such force majeure circumstances as soon as reasonably practical, and shall promptly undertake all reasonable efforts necessary to cure such force majeure circumstances.

16.2 **Assignment**. Except as provided in this Section 16.2, this Agreement may not be assigned or otherwise transferred, nor may any right or obligation hereunder be assigned or transferred, by either Party without the consent of the other Party; provided, however, that either Party may, without such consent, assign this Agreement and its rights and obligations hereunder in whole or in part to an Affiliate (provided, further, that the assigning Party shall remain liable for the performance or non-performance of such Affiliate) or, subject to Article 14, in connection with the transfer or sale of all or substantially all of its assets related to the subject matter of this Agreement, or in the event of its merger or consolidation or change in control or similar transaction. Any attempted assignment not in accordance with this Section 16.2 shall be void. Any permitted assignee shall assume all assigned obligations of its assignor under this Agreement.

16.3 **Rights in Bankruptcy**. All licenses and rights to licenses granted under or pursuant to this Agreement by a Party are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the US Bankruptcy Code (the "**Code**"), licenses of rights to "intellectual property" as defined under Section 101(335A) of the Code. The Parties agree that each Party, as a licensee of certain rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the Code, and that upon commencement of a bankruptcy proceeding by or against a Party under the Code (such Party, the "**Bankrupt Party**"), the other Party shall be entitled to a complete duplicate of or complete access to (as the other Party deems appropriate), any intellectual property licensed to such other Party and all embodiments of such intellectual property, which, if not already in such other Party's possession, shall be promptly delivered to it: (i) upon any such commencement of a bankruptcy proceeding upon such other Party's written request therefor, unless the Bankrupt Party elects to continue to perform all of its obligations under this Agreement; or (ii) if not delivered under clause (i), following the rejection of this Agreement by the Bankrupt Party upon written request therefor by the other Party.

16.4 **Severability**. If any one or more of the provisions contained in this Agreement is held invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby, unless the absence of the invalidated provision(s) adversely affects the substantive rights of the Parties. The Parties shall in such an instance use their best efforts to replace the invalid, illegal or unenforceable provision(s) with valid, legal and enforceable provision(s) that, insofar as practical, implement the purposes of this Agreement.

16.5 **Notices**. All notices that are required or permitted hereunder shall be in writing and sufficient if delivered personally, sent by facsimile (and promptly confirmed by personal delivery, registered or certified mail or overnight courier), sent by nationally-recognized overnight courier or sent by registered or certified mail, postage prepaid, return receipt requested, addressed as follows:

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if to NGM, to:	NGM Biopharmaceuticals Inc. 630 Gateway Blvd, South San Francisco, CA 94080 Attention: Chief Executive Officer Facsimile No.: 650-583-1646
and:	Cooley LLP 3175 Hanover Street Palo Alto, CA 94304 Attention: Barbara A. Kosacz Facsimile No.: 650-849-7400
if to Merck, to:	Merck Sharp & Dohme Corp. One Merck Drive P.O. Box 100 Whitehouse Station, NJ 08889-0100 Attention: Office of Secretary Facsimile No.: 908-735-1246
And	Merck Sharp & Dohme Corp. 2000 Galloping Hill Road Mail Stop K-15-352 Kenilworth, NJ 07033 Attention: VP, Transactions, Business Development & Licensing, MRL Facsimile No.: 908-740-3148

or to such other address(es) as the Party to whom notice is to be given may have furnished to the other Party in writing in accordance herewith. Any such notice shall be deemed to have been given: (a) when delivered if personally delivered or sent by facsimile on a Business Day (or if delivered or sent on a non-Business Day, then on the next Business Day); (b) on the Business Day after dispatch if sent by nationally-recognized overnight courier; or (c) on the fifth (5th) Business Day following the date of mailing, if sent by mail.

16.6 **Applicable Law**. This Agreement shall be governed by and construed in accordance with the laws of the State of New York and the patent laws of the US without reference to any rules of conflict of laws.

16.7 **Dispute Resolution**.

16.7.1 The Parties shall negotiate in good faith and use reasonable efforts to settle any dispute, controversy or claim arising from or related to this Agreement or the breach thereof. If the Parties do not fully settle, and a Party wishes to pursue the matter, [*].

[*]

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16.7.5 The Parties agree that, in the event of a good faith dispute over the nature or quality of performance under this Agreement, neither Party may terminate this Agreement until final resolution of the dispute [*]. The Parties further agree that any payments made pursuant to this Agreement pending resolution of the dispute shall be refunded if an arbitrator or court determines that such payments are not due.

16.7.6 As used in this Section, the term [*].

16.8 **Entire Agreement; Amendments**. This Agreement, together with the Schedules and Exhibits hereto, contains the entire understanding of the Parties with respect to the subject matter hereof. Any other express or implied agreements and understandings, negotiations, writings and commitments, either oral or written, in respect to the subject matter hereof are superseded by the terms of this Agreement. The Schedules and Exhibits to this Agreement are incorporated herein by reference and shall be deemed a part of this Agreement. This Agreement may be amended, or any term hereof modified, only by a written instrument duly executed by authorized representative(s) of both Parties hereto.

Notwithstanding anything to the contrary in the foregoing, the Parties agree, effective as of the Effective Date, that the mutual nondisclosure agreement between the Parties dated January 27, 2014, as amended (collectively, the "**Prior CDA**"), shall be superseded by this Agreement, and that disclosures made prior to the Effective Date pursuant to the Prior CDA shall be subject to the confidentiality and non-use provisions of this Agreement as if made under this Agreement.

16.9 **Headings**. The captions to the several Articles, Sections and subsections hereof are not a part of this Agreement, but are merely for convenience to assist in locating and reading the several Articles and Sections hereof.

16.10 **Independent Contractors**. It is expressly agreed that NGM and Merck shall be independent contractors and that the relationship between the two Parties shall not constitute a partnership, joint venture or agency. Neither NGM nor Merck shall have the authority to make any statements, representations or commitments of any kind, or to take any action, that shall be binding on the other Party, without the prior written consent of the other Party.

16.11 **Waiver**. The waiver by either Party hereto of any right hereunder, or of any failure of the other Party to perform, or of any breach by the other Party, shall not be deemed a waiver of any other right hereunder or of any other breach by or failure of such other Party whether of a similar nature or otherwise.

16.12 **Cumulative Remedies**. No remedy referred to in this Agreement is intended to be exclusive, but each shall be cumulative and in addition to any other remedy referred to in this Agreement or otherwise available under Law.

16.13 **Waiver of Rule of Construction**. Each Party has had the opportunity to consult with counsel in connection with the review, drafting and negotiation of this Agreement. Accordingly, the rule of construction that any ambiguity in this Agreement shall be construed against the drafting Party shall not apply.

16.14 **Certain Conventions**. Any reference in this Agreement to an Article, Section, subsection, paragraph, clause, Schedule or Exhibit shall be deemed to be a reference to an Article, Section, subsection, paragraph, clause, Schedule or Exhibit, of or to, as the case may be, this Agreement, unless otherwise indicated. Unless the context of this Agreement otherwise requires: (a) words of any gender include each other gender; (b) words such as "herein", "hereof", and "hereunder" refer to this Agreement as a whole and not merely to the particular provision in which such words appear; (c) words using the singular shall include the plural, and vice versa; and (d) the words "include" or "including" shall be construed as incorporating "but not limited to" or "without limitation".

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16.15 **Business Day Requirements**. In the event that any notice or other action or omission is required to be taken by a Party under this Agreement on a day that is not a Business Day, then such notice or other action or omission shall be deemed to be required to be taken on the next occurring Business Day.

16.16 **Counterparts**. This Agreement may be signed in any number of counterparts (facsimile and electronic transmission included), each of which shall be deemed an original, but all of which shall constitute one and the same instrument. After facsimile or electronic transmission, the Parties agree to execute and exchange documents with original signatures.

16.17 **HSR Act**.

16.17.1 *Effective Date.*

(a) Each of Merck and NGM shall, within ten (10) Business Days after the Execution Date, file with the United States Federal Trade Commission and the Antitrust Division of the United States Department of Justice, any HSR Filing required of it under the HSR Act with respect to the subject matter of this Agreement, which forms shall specifically request early termination of the initial HSR Act waiting period. The Parties will cooperate with one another to the extent necessary in the preparation of any such HSR Filing. The Parties hereto commit to instruct their respective counsel to cooperate with each other and use good faith, diligent efforts to facilitate and expedite the identification and resolution of any such issues and, consequently, the expiration of the applicable HSR Act waiting period, such good faith diligent efforts to include counsel's undertaking: (i) to keep each other appropriately informed of communications received from and submitted to personnel of the reviewing antitrust authority; and (ii) to confer with each other regarding appropriate contacts with and response to personnel of the United States Federal Trade Commission and the Antitrust Division of the United States Department of Justice. Each Party will be responsible for its own costs, expenses and filing fees associated with any HSR Filing. In respect of any HSR Filing, each of Merck and NGM will use its good faith, diligent efforts to eliminate any concern on the part of any court or governmental authority regarding the legality of the proposed transaction, including cooperating in good faith with any government investigation and the prompt production of documents, information and witnesses requested in the course of such of any such investigation, including those contained in a Request for Additional Information and Documentary Materials (as that term is defined in the HSR Act), and to cause the Effective Date of this Agreement to occur as soon as practical, as provided in Section 16.17.2. Nothing in this Section shall require either Party to consent to the divestiture or other disposition of any of its or its Affiliates' assets or to consent to any other structural or conduct remedy, and each Party and its Affiliates shall have no obligation to contest, administratively or in court, any ruling, order or other action of the United States Federal Trade Commission and the Antitrust Division of the United States Department of Justice or any Third Party respecting the transactions contemplated by this Agreement.

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(b) Except for the specific provisions expressly identified in Section 16.17(c), this Agreement shall not be effective until such time as the HSR Conditions are met. Immediately at the time when all the HSR Conditions are met, this Agreement shall be effective automatically in its entirety (such date the "**Effective Date**").

(c) Notwithstanding Section 16.17.2 and anything in this Agreement to the contrary, the following provisions of this Agreement shall be in full force and effect as of the Execution Date: Sections 4.8, 16.3, 16.4, 16.5 and 16.16 and Article 1 (Definitions) and Article 10 (Confidentiality and Publication).

(d) In the event that the Effective Date has not occurred within one hundred eighty (180) days following the Execution Date, or such date as the Parties may mutually agree, this Agreement may be terminated by either Party on written notice to the other.

16.17.2 *Merck Option Exercise*. Prior to any exercise of any Merck Option pursuant to this Agreement, each of Merck and NGM shall make any necessary merger control filings under any applicable competition or antitrust laws, including pursuant to the HSR Act, with any applicable governmental authority and shall obtain the necessary approvals or clearances or the applicable waiting period shall have expired or been terminated ("**Antitrust Approvals**"); provided, however, that each of Merck and NGM shall cooperate as may be reasonably requested to ensure any such Antitrust Approvals are obtained.

16.18 **Other Activities**. The Parties acknowledge that each of them may now or in the future engage in research, manufacturing, development or commercialization activities that utilize technologies similar to or involve products competitive with those contemplated by this Agreement. Except as may be expressly provided in Section 3.6 with respect to NGM and Merck, and Section 5.6 with respect to NGM, nothing in this Agreement, including any obligation to use Commercially Reasonable Efforts to Develop or Commercialize Optioned Compounds or Products or any restriction on the use of Confidential Information, shall create any obligation not to research, manufacture, develop or commercialize any product or any obligation to utilize a separate sales force for Products or Small Molecule Products. Neither Party shall be prevented from using any publicly available research results or other information (including any publicly available information of the other Party) to the same extent as Third Parties generally are legally permitted to do so. Each Party agrees to inform its key personnel assigned to perform activities hereunder of the limitations on use of Confidential Information contained in this Agreement, instruct such personnel to comply with such restrictions, and where appropriate, impose firewalls or other appropriate measures to minimize the potential for misuse of information. However, each Party has limited resources, and as a result it is anticipated that personnel assigned to activities hereunder may also participate in other activities that may utilize technologies similar to or involve products competitive with those contemplated by this Agreement. In particular, it is anticipated that personnel in sales, marketing, clinical and regulatory functions, regardless of level, will participate in multiple programs and that management personnel will by nature of their leadership positions participate in multiple programs.

16.19 **Extension to Affiliates**. Each Party shall have the right to extend the rights, licenses, immunities and obligations granted or imposed in this Agreement to one or more of its Affiliates. All applicable terms and provisions of this Agreement shall apply to any such Affiliate to

which this Agreement has been extended to the same extent as such terms and provisions apply to such Party. Each Party shall remain fully liable for any acts or omissions, including financial liabilities, of such Affiliates. To the extent that this Agreement imposes obligations on any Affiliates of a Party, such Party agrees to cause its Affiliates to perform such obligations.

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IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Execution Date.

MERCK SHARP & DOHME CORP.

BY: /s/ Kenneth C. Frazier
NAME: Kenneth C. Frazier
TITLE: Chairman, President and CEO

NGM BIOPHARMACEUTICALS, INC.

BY: /s/ William J. Rieflin
NAME: William J. Rieflin
TITLE: CEO

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EXHIBIT A
NP201 PATENTS

NGM Ref. No	Country / Region	Filing Date (Publn. Date)	Serial No. (Publn. No.)	Assignee	Status
[*]	[*]	[*]	[*]	[*]	[*]

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EXHIBIT B
NGM PATENTS

[*]

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SCHEDULE 1.5
ADJUSTED NET SALES

It is the intent of the Parties that the Adjusted Net Sales resulting from, or Allowable Expenses incurred in connection with, the Commercialization of an NGM Optioned Product worldwide will be allocated to NGM to the extent of the NGM ANS Allocation. This Schedule sets forth the methodology for calculating such worldwide Adjusted Net Sales and Allowable Expenses for such NGM Optioned Product.

"**Adjusted Net Sales**" shall, with respect to each NGM Optioned Product and as incurred on an accrual basis in a given Calendar Quarter for such NGM Optioned Product, mean: [*].

As used in this Schedule, "**Other Income**" means [*].

The following definitions shall be utilized in calculating Allowable Expenses in each Calendar Quarter.

"**Allowable Expenses**" shall, with respect to such NGM Optioned Product, mean those expenses incurred for such NGM Optioned Product that are generally consistent with Merck's Commercialization Plan and estimated budget for such product and are specifically attributable or allocable to such NGM Optioned Product in the Territory, and shall, with respect to such NGM Optioned Product, consist of the following, all as defined below:

[*]

"Additional Regulatory Costs" shall mean costs incurred: (i) [*]; and (ii) [*].

"**Cost of Goods Sold**" shall, with respect to each NGM Optioned Product, mean Merck's Manufacturing Costs attributable to the manufacture of such NGM Optioned Product for sale in the U.S. and/or the cost of NGM Optioned Product manufactured by Third Parties, as and to the extent actually manufactured by Third Parties. Merck's "Manufacturing Costs" shall consist of "US GAAP Standard Cost" and "Product Specific Manufacturing Variances" as defined below:

"**US GAAP Standard Cost**" shall mean, if applicable, the following with respect to such NGM Optioned Product:

[*]

The US GAAP Standard Cost will be established each Calendar Year for the upcoming year according to the forecast for requirements for such NGM Optioned Product.

"**Testing Costs**" shall mean: [*]

"**Product Specific Manufacturing Variances**" shall mean [*].

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(a) "**Direct Marketing Expenses**" shall mean [*]

Direct Marketing Expenses shall not include any Selling Expenses and the costs of activities that promote a Party's business as a whole without being product specific (*e.g.*, corporate image advertising).

"**Distribution Expenses**" shall, with respect to each NGM Optioned Product, mean costs incurred in connection with [*].

"**Indirect Marketing Expenses**" shall, with respect to each NGM Optioned Product, mean [*].

"**License Fees**" shall mean [*].

"**Patent and Trademark Expenses**" shall, with respect to each NGM Optioned Product, mean [*].

"**Post-Approval Product Development Expenses**" shall, with respect to each NGM Optioned Product, mean [*].

"**Product Liability Losses**" shall mean [*].

"**Selling Expenses**" shall mean: with respect to a NGM Optioned Product, [*].

Principles:

In calculating the Adjusted Net Sales the following principles shall apply:

1. There shall be no double counting of any costs or expenses or of any revenues, and to the extent a cost or expense has been included in one category or sub-category, it shall not be included in another; similarly, to the extent any revenue has been taken into account in one category or sub-category it shall not be taken into account in another.

2. When allocating costs and expenses under the Agreement, each Party shall utilize the same policies and principles as it utilizes consistently within its group and business units when making internal cost allocations.

3. To the extent an item of income or revenue is received by a Party or a cost or expense is incurred in a given Calendar Quarter by a Party, and can be demonstrated to be necessary and specifically and directly identifiable, attributable and allocable to the Commercialization or development of each NGM Optioned Product and is not otherwise accounted for in the calculation of Adjusted Net Sales, such Party shall credit such income or revenue and shall be permitted to charge such cost or expense to the Adjusted Net Sales.

4. To the extent any cost set forth in this Schedule has applicability to both the NGM Optioned Product and to any other product, a portion of such costs will be allocated by Merck to the NGM Optioned Product in good faith.

5. All costs and expenses shall be determined, and all calculations shall be made, in accordance with US GAAP, as applicable, and in consistency with Merck's internal cost allocation practices used in connection with pharmaceutical products owned or controlled solely by Merck without requirement to share profits or significant royalties with any Third Party.

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If either Party in good faith believes that the methodology set forth herein does not accurately reflect the Adjusted Net Sales for a NGM Optioned Product, upon request of such Party, the Parties shall in good faith discuss such concerns and, if the Parties agree upon mutually acceptable revisions to the methodologies set forth herein, they shall amend this Schedule as appropriate.

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SCHEDULE 1.36
COLLABORATION TARGETS

NGM Code Number	Uniprot Accession Number
[*]	[*]

[*].

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SCHEDULE 1.136
NP201 RESEARCH PLAN

[*]

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SCHEDULE 7.8.4
TERMS FOR CO-DETAILING AGREEMENT

This Schedule sets forth some of the material terms and conditions that, together with the terms of Section 7.8 of the Agreement, the Parties presently contemplate will be incorporated into a Co-Detailing Agreement to be negotiated and entered into by the Parties for each NGM Optioned Product for which NGM exercises its Co-Detailing Option (each a **"Co-Detailed Product"** and, collectively, the "**Co-Detailed Products**"). Notwithstanding the foregoing, the Parties acknowledge that these Co-Detailing Terms are being proposed many years in advance of the identification of a Co-Detailed Product and many years before a Co-Detailing Agreement is put in place between them. Accordingly, these Co-Detailing Terms are subject to modification at the time a Co-Detailing Agreement is put in place in order to take into account Merck's then current commercialization practices for such a Co-Detailed Product.

1) Definitions

(a) "**Detail**" means, with respect to [*].

(b) **"Detailing Effort"** means, with respect [*].

[*] would be subject to the following: (a) [*]; and (b) [*] of the following: (1) [*]; (2) [*]; (3) [*]; and (4) [*].

(c) **"Target Healthcare Professional"** means [*].

(d) "**Plan**" means [*] and shall address: (i) [*]; (ii) [*]; (iii) [*]; (iv) [*]; (v) [*]; and (vi) [*].

2) **Co-Detailing Rights and Obligations; Plan**.

(a) **General**. NGM and Merck shall use a combined sales force to Detail each Co-Detailed Product, with NGM providing a sales force of sufficient size and experience necessary to provide Detailing to constitute no more than twenty-five percent (25%) of the Parties' Detailing Effort in the Co-Detailing Territory and Merck providing all other Detailing in the Co-Detailing Territory, as determined by Merck. In the event that the NGM sales force is not of sufficient size to accomplish its Co-Detailing Effort as measured above, then Merck shall have the right to assume such shortfall of sales representatives, in accordance with Section 2(c) below. Each Party shall be responsible for ensuring that its sales representatives Detail each Co-Detailed Product in a manner consistent with the Plan for such Co-Detailed Product. Notwithstanding the foregoing, in performing their respective Detailing Effort obligations hereunder, except as expressly stated herein otherwise, each of the Parties agrees to: (i) use representatives with an experience profile appropriate for the target audience and sales effort role described in the Plan as reasonably determined by Merck; and (ii) provide its own sales management organization and infrastructure for its representatives. In addition, if Merck's commercialization model changes such that it will no longer field a sales force in the U.S. for Detailing of such Co-Detailed Product, then NGM shall not have a right to Co-Detail such Co-Detailed Product and the Parties will discuss the possibility of NGM participating in such other activities for promotion of the Product in the Co-Detailing Territory at a similar level of participation.

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(b) **Term.** The Parties' activities under this Agreement relating to the Co-Detailing of a particular Co-Detailed Product in the Co-Detailing Territory shall remain in effect until the first to occur of the following: (i) the date that the Co-Detailed Product is no longer sold in the Co-Detailing Territory due to a permanent product withdrawal or recall; (ii) the mutual written agreement of both Parties to abandon such Co-Detailing; (iii) early termination of the Agreement with respect to such Co-Detailed Product; (iv) the total number of sales representatives required to Detail a particular Co-Detailed Product in the Co-Detailing Territory falls below [*]; or (v) Merck's decision that it is no longer commercially reasonable to engage in Detailing of such Co-Detailed Product**.**

(c) **Annual Plan**. [*] will develop and update annually the Plan for [*] shall set forth in the Plan the following: (i) [*]; (ii) [*]; and (iii) [*].

3) **Sales Force Matters**.

(a) **Establishment; Early Deployment.** Upon the exercise of its Co-Detailing Option with respect to the first NGM Option Product as to which it exercises such option, NGM will establish or have established (i) [*] of, as soon as reasonably possible, but no later than [*], and (ii) [*] of, as soon as reasonably possible, but no later than [*], its internal sales force of sales representatives responsible for Co-Detailing the Co-Detailed Product(s) to the relevant audience in the Co-Detailing Territory as set forth in the Plan (the **"NGM Sales Force"**). Merck understands and acknowledges that NGM may detail one or more pharmaceutical products in addition to the Co-Detailed Product(s); provided, however, such other products shall not be given primary positioning in any details or directly compete with the Co-Detailed Product(s), except as expressly provided in the Plan. To clarify, during the term of the Co-Detailing Agreement, the NGM Sales Force representatives (and the Merck sales representatives) that are used for Co-Detailing the Co-Detailing Product(s) shall not Detail any non-Co-Detailed Product that has approved labeling for use in the same indication(s) as a Co-Detailed Product or that directly competes with a Co-Detailing Product.

(b) **Resource Commitment**. In the event of any decrease in the number of Details from the level set forth in the then-current Plan by more than [*], the Parties shall have [*] to implement such decrease. In the event of any increases in the number of Details by [*] from the level set forth in the then-current Plan, the Parties shall have [*] to implement any such increase. In connection with any such increase or decrease, the JCC shall amend the annual Plan accordingly.

(c) **NGM Sales Force Size; Launch Readiness.** The NGM Sales Force shall be of sufficient size and level of experience necessary to Co-Detail the Product (either on a primary-detail-equivalent or sales FTE basis, or other method of determining the appropriate level of effort as reasonably determined by Merck) with Merck in the Co-Detailing Territory as set forth in the Plan and in the Co-Detailing Agreement. The JCC shall meet [*] prior to [*](the "**Launch Readiness Meeting**"), during which meeting NGM shall present to the JCC the number of sales representatives it has hired and the level of experience of such sales representatives that are ready for training for launch of the Co-Detailed Product. Unless the Parties agree to an alternative commercial ramp up strategy, in the event that NGM has not hired [*] or more of its sales representatives required under the Plan (the **"Required Sales FTEs"**) prior to [*] (such difference between the actual sales representatives hired by NGM (**"Equivalent Sales FTEs"**) and its

Required Sales FTEs, the "**Sales Force Shortfall**"), Merck shall have the right (but not the obligation) to supplement for such Sales Force Shortfall by providing its sales representatives, up to the number of such Sales Force Shortfall (the "**Replaced Sales FTEs**"), to promote the Co-Detailed Product in the Co-Detailing Territory. Unless otherwise agreed by the Parties, in such event of Merck fielding the Replaced Sales FTEs, the NGM share going forward of the Required Sales FTEs shall be equal to the Equivalent Sales FTEs; provided, however, that NGM may request to increase such then-current level back to the Required Sales FTEs upon [*] notice to Merck and upon Merck's prior approval.

(d) **Qualifications**. NGM will be solely responsible for recruiting, hiring and maintaining the NGM Sales Force in accordance with its then-standard procedures and the guidelines, if any, developed with input from the JCC, and shall have sole control over such sales force. Notwithstanding the foregoing, however, upon NGM's reasonable request:

(i) Merck will assist NGM in the establishment of a sales force by providing assistance in defining the desired profile, hiring criteria and recruiting programs for the NGM representatives;

(ii) The Parties shall agree on the profile to be used for recruitment of representatives that is consistent with Merck's standard business practices for each such Co-Detailed Product; and

(iii) Merck, upon request of NGM, shall provide or make available to the NGM Sales Force representatives basic pharmaceutical sales training at a reasonable cost to NGM to be agreed upon by Merck and NGM at such time.

(e) **Product-Specific Training**. [*] shall develop a training program for [*].

(f) **Use of Contract Sales Organizations.** NGM may not employ a contract sales organization ("**CSO**") to fulfill any of its detailing obligations in the Co-Detailing Territory without the prior consent of Merck; provided, however, that the consent of Merck is not required if NGM uses a CSO that is either: (a) at such time then utilized by Merck in connection with one or more other Merck products; or (b) otherwise approved by Merck, in each case to fulfill such detailing obligations in the Co-Detailing Territory to cover for normal course extended absences and turnover of NGM Sales Force representatives, including maternity leaves and the like; provided, further, that, in the event that a CSO is used under such circumstances, it shall be used for no less than [*] and no longer than [*] and of which the total amount of CSO representatives at any period may never exceed [*] of the total committed NGM sales force, or NGM may request that Merck provide such coverage.

(g) **Compensation Programs for Sales Representatives**. Each Party shall be solely responsible for any compensation that is payable to its sales representatives. Each Party represents and warrants to the other Party that its compensation programs for its sales representatives do not, and will not, provide financial incentives that, to its knowledge, facilitate the promotion, sales, and marketing of the Co-Detailed Product in violation of Applicable Laws. Each Party agrees to include the Co-Detailed Product in its sales representatives' bonus compensation programs, and which will be reviewed and modified as appropriate and as part of the Annual Plan.

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(h) **Target Healthcare Professionals; Field Assignments.**

(i) No later than September 1 of each year, the JCC shall discuss prospective accounts, segmentation, targeting and other promotional benchmarks and shall establish an annual detailing and targeting plan consistent with the terms of this Schedule and the Co-Detailing Agreement ("**Target Call List**"). Both Parties shall have full access to the Target Call List and modifications thereto. The Parties each shall provide input on the formulation of the Target Call List and the determination of the number of Details, and will give due consideration to all such input provided by other Party, in good faith.

(ii) The JCC (or subcommittee thereof) shall equitably assign responsibility for Detailing by each Party's sales representatives to Target Healthcare Professionals identified on the Target Call List consistent with the terms of this Schedule and the Co-Detailing Agreement.

(i) **Sales Effort Tracking; Audit Rights**. NGM and Merck, through the JCC or any subcommittee thereof to which such matter is delegated, shall determine the appropriate methodology for tracking the sales efforts of NGM. NGM shall maintain written and/or electronic records of its sales efforts for the later of, a period of [*] from the date of performance or Applicable Law. Merck shall have the right to inspect such records of NGM to verify NGM's sales effort reports provided to Merck under the Agreement. NGM shall make its records available for inspection by appropriate representatives of Merck during regular business hours at such place or places where such records are customarily kept, upon reasonable notice from Merck, solely to verify the accuracy of such statements. Such inspection right shall not be exercised more than once in any Calendar Year and shall not entitle Merck to review any sales related information with respect to products that are other than any Co-Detailed Product(s). All information concerning such statements, and all information learned in the course of any audit or inspection, shall be the confidential Information of NGM.

4) **Commercialization Efforts**. NGM shall use Commercially Reasonable Efforts to execute its obligations under the Plan for each Co-Detailed Product, consistent with the applicable Commercialization budget, Detailing Efforts, Commercial Plan and in accordance with all Laws, and shall cooperate with Merck in carrying out such Plan.

5) **Promotional Materials and Standards**.

(a) In Detailing a Co-Detailed Product, the Parties shall maintain and adhere strictly to the approved labeling of the Co-Detailed Product, the approved marketing materials for the Co-Detailed Product, the Agreement and the Plan for such Co-Detailed Product. Only marketing materials and programs developed by Merck's marketing team and approved *via* the Merck medical-legal review process in accordance with FDA regulations for the Co-Detailed Product in the Co-Detailing Territory shall be used. All promotional materials used by the Parties and all promotional activities relating to the Co-Detailed Product shall comply with all Applicable Laws and the Code of International Federation Pharmaceutical Manufacturer Association ("IFPMA"), including all FDA regulations regarding pharmaceutical marketing practices in the US. In addition, each Party shall insure that its representatives detail Co-Detailed Product in a fair and balanced manner consistent with all applicable legal, regulatory, professional and policy requirements, including all applicable Merck policies. Merck and NGM representatives shall not engage in any

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pre-marketing activities for a Co-Detailed Product prohibited by Applicable Laws and shall not promote any Co-Detailed Product for off-label uses. The Co-Detailed Product shall be Co-Detailed under a single trademark designated and owned by Merck (or its Related Party).

(b) Merck shall identify to NGM the Person or Persons to whom NGM and its Affiliates shall refer all medical questions or inquiries from members of the medical and paramedical professions and consumers regarding the Co-Detailed Products in the United States that NGM and its Affiliates cannot readily answer by reference to the Promotional Materials or other product literature for the Co-Detailed Products. NGM shall use Commercially Reasonable Efforts to refer all such medical questions or inquiries to such identified Merck Person or Persons.

(c) Prior to the NGM Sales Force being deployed to Co-Detail the Co-Detailed Products Merck shall provide to NGM a set of Merck's standard operating procedures for responding promptly to medical questions or inquiries and product complaints in the Co-Detailing Territory from members of the medical and paramedical professions and consumers relating to the Co-Detailed Products. NGM shall cause the NGM Sales Force to comply with any Merck standard operating procedures regarding how to respond to medical questions or inquiries and complaints relating to the Co-Detailed Products in the Co-Detailing Territory. In addition, Merck shall train the NGM Sales Force as provided above on how to respond to such questions or inquiries.

(d) Merck shall have the sole responsibility for investigating and reporting to Regulatory Authorities all adverse drug experiences for the Co-Detailed Products in accordance with Applicable Law. NGM shall have the responsibility for promptly forwarding to Merck, as reasonably instructed by Merck, any and all reports received by NGM of adverse drug experience for the Co-Detailed Products, which reports shall be investigated by Merck. NGM shall ensure that, in the Co- Detailing of the Co-Detailed Product, it will record, investigate, summarize, notify, report and review all adverse drug experiences in accordance with Applicable Law.

(e) Merck shall promptly notify NGM of any material actions to be taken by Merck with respect to any recall or market withdrawal or other corrective action related to the Co-Detailed Products in the Co-Detailing Territory, which decision to recall, withdraw or take any other corrective action relating to the Co-Detailed Products shall be made by Merck in its sole discretion. At Merck's request and expense, NGM shall provide reasonable assistance to Merck in conducting such recall, market withdrawal or other corrective action in the United States. In accordance with the foregoing, Merck shall make all decisions with respect to any recall, market withdrawals or any other corrective action related to the Co-Detailed Products in the Co-Detailing Territory.

(f) During the period that NGM is Co-Detailing the Co-Detailed Products, the Parties shall notify each other immediately of any circumstances of which they are aware and that could impair the integrity and reputation of the Co-Detailed Products or if a Party is threatened by the unlawful activity of any Third Party in relation to the Co-Detailed Products, which circumstances shall include, by way of illustration, deliberate tampering with or contamination of the Co-Detailed Products by any Third Party as a means of extorting payment from the Parties or another Third Party. In any such circumstances, the Parties shall use Commercially Reasonable Efforts to limit any damage to the Parties and/or to the Co-Detailed Products, as applicable and according to a Pharmacoviligance Agreement attached to the Co-Detailing Agreement describing the collaboration. The Parties shall promptly call a meeting to discuss and resolve such circumstances.

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6) **Supply and Returns**.

(a) If, for any reason, NGM receives orders for the Co-Detailed Products, NGM shall forward such orders to Merck (or if directed by Merck to Merck's wholesalers) as soon as practicable.

(b) Except as provided below, if any quantities of the Co-Detailed Products are returned to NGM, NGM shall immediately notify Merck and ship them to the facility and in a manner designated by Merck, with any reasonable or authorized shipping or other documented direct cost to be treated as an Allowable Expense, NGM shall destroy the Co-Detailed Products, and provide Merck with a written certification of such destruction, the cost of such destruction to be borne by Merck. NGM, at its option, may advise the customer who made the return that the Co-Detailed Products should have been returned to Merck, but shall take no other steps in respect of any return without the consent of Merck, such consent not to be unreasonably withheld, conditioned or delayed.

7) **Performance Criteria**. The Parties shall agree on criteria for measuring NGM's performance under the Co-Detailing Agreement, which shall be consistent with Merck's standards for measuring the performance of Merck's sales representatives promoting the Co-Detailed Product. In the event that NGM defaults on its Co-Detailing Efforts and obligations, NGM will have one Calendar Quarter to remedy its performance. In the event that NGM defaults on its Co-Detailing Efforts and obligations for two consecutive Calendar Quarters, and is unsuccessful in remedying the situation, Merck may unilaterally terminate the Co-Detailing Agreement

8) **Sales/Prescriber Data**. Each Party shall be responsible for collecting and providing information about the Co-Detailed Product Detailing, which may include (for example) sales call activity and account profiling information. Each Party may use a Customer Relationship Management system of its choice, or by other means provide the information required to meet its obligations under this Section.

9) **Merck Policies.** At such time as [*].

10) **Compliance.** If required by [*].

11) **Miscellaneous**. The Co-Detailing Agreement shall contain other provisions that Merck customarily uses in such agreements, including provisions for audits, record keeping, reporting, performance metrics, confidentiality, termination and, to the extent not already addressed in the Agreement, indemnification.

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SCHEDULE 11.2

[*]

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FIRST AMENDMENT TO RESEARCH COLLABORATION, PRODUCT DEVELOPMENT AND LICENSE AGREEMENT

This First Amendment to the Research Collaboration, Product Development and License Agreement (the "**Amendment**") is effective as of January 1, 2016 (the "**Amendment Effective Date**") by and between NGM BIOPHARMACEUTICALS, INC., a corporation organized and existing under the laws of Delaware ("**NGM**") and MERCK SHARP & DOHME CORP., a corporation organized and existing under the laws of Delaware ("**Merck**"). Each of Merck and NGM may be referred to herein individually as a "**Party**" and collectively as "**Parties**."

RECITALS:

WHEREAS, NGM and Merck are parties to that certain Research Collaboration, Product Development and License Agreement dated as of February 18, 2015 (the "**Agreement**");

WHEREAS, the Parties now desire to amend the Agreement as outlined below.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants herein contained, the receipt and sufficiency of which are hereby acknowledged, NGM and Merck hereby agree as follows:

1. AMENDMENT OF THE AGREEMENT

1.1 Section 1.198 of the Agreement is hereby deleted and replaced in its entirety with the following:

"**Research Program Year**" shall mean the period from January 1 of a Calendar Year until December 31 of the same Calendar Year during the Full Research Program Term; provided, however, that (a) the Research Program Year 1 began on the Effective Date and shall be deemed to have ended on December 31, 2015, (b) the final Research Program Year of the Research Program Term (which will be: (i) Research Program Year 6 if there is no First Extension Period, (ii) Research Program Year 8 if there is a First Extension Period but no Second Extension Period, and (iii) Research Program Year 10 if there is both a First Extension Period and a Second Extension Period) shall begin on January 1 of the applicable Calendar Year and end on March 31 of such Calendar Year, (c) the Research Program Year that corresponds to Tail Year 1 (if any) shall begin on April 1 of the applicable Calendar Year and end on December 31 of the same Calendar Year and (d) the Research Program Year that corresponds to Tail Year 4 (if any) shall begin on January 1 of the applicable Calendar Year and end on March 31 of such Calendar Year.

1.2 Section 1.219 of the Agreement is hereby deleted and replaced in its entirety with the following:

"**Tail Period**" shall mean the period commencing upon expiration of Research Program Term and ending on the earlier of (a) thirty-six (36) months later or (b) the effective date of Merck's termination thereof in accordance with Section 4.4.1. For clarity, if Merck does not exercise its right pursuant to Section 4.4.1 to require NGM to conduct additional research and development of Tail Compounds/Targets, then there will not be a Tail Period. Unless Merck terminates the Tail Period in accordance with Section 4.4.1 (in which case the Tail Period and the applicable Tail Year shall end upon the effective date of such termination and there shall not be any new Tail Years after such effective date), the Tail Period shall consist of the following four (4) Research Program Years (each a "**Tail Year**"): (i) Tail Year 1 shall begin on April 1 of the Calendar Year in which the Research Program Term ends (such Calendar Year, the "**End Year**") and shall end on December 31 of the End Year, (ii) Tail Year 2 shall begin on January 1 of the Calendar Year immediately following the End Year and end on December 31 of the same Calendar Year, (iii) Tail Year 3 shall begin on January 1 of the Calendar Year that is the second Calendar Year after the End Year and end on December 31 of the same Calendar Year, and (iv) Tail Year 4 shall begin on January 1 of the Calendar Year that is the third Calendar Year after the End Year and end on March 31 of the same Calendar Year.

1.3 Section 1.220 of the Agreement is hereby deleted and replaced in its entirety with the following:

"**Tail Year**" shall have the meaning set forth in Section 1.219.

1.4 The table in Section 4.2.3(a) of the Agreement is hereby deleted and replaced in its entirety with the following:

FUNDING YEAR	AMOUNT OF PAYMENT
Research Program Years 2 through 5	$ 50,000,000
Research Program Year 6 if there is no First Extension Period	[*]

1.5 Section 4.2.3(e) of the Agreement is hereby deleted and replaced in its entirety with the following:

Funding of FTE's and External Costs during the First Extension Period (i.e., Research Program Year 6 and Research Program Year 7) or the Second Extension Period (i.e., Research Program Year 8, Research Program Year 9 and Research Program 10) shall be at such levels as is mutually agreed upon by the Parties in writing, but shall be on similar business terms and payment mechanism as described above in this Section 4.2; provided, however, that the funding of FTE's and External Costs for the first Calendar Quarter of Research Program

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Year 6 shall be determined solely by NGM and shall not exceed [*] unless such cap is increased by mutual written agreement of the Parties or in accordance with Section 4.2.7. Such agreement on funding of FTE's for each Research Program Year of the First Extension Period and Second Extension Period, as applicable, shall include a budget cap of at least [*] and no greater than [*] of the sum of (i) the Research Funding for the first Calendar Quarter of Research Program Year 6 plus (ii) the Research Funding for the second, third and fourth Calendar Quarters of Research Program Year 5, excluding, for clarity, any amounts paid under Section 4.2.7 (such sum, the "**Research Funding Reference Amount**"); provided, however, that with respect to the last Research Program Year of the Research Program Term (i.e., Research Program Year 8 if there is a First Extension Period but no Second Extension Period, and Research Program 10 if there is both a First Extension Period and a Second Extension Period), the budget cap shall be at least [*] and no greater than [*] of the Research Funding Reference Amount. NGM shall not be required to conduct any research or development activities during any such First Extension Period or Second Extension Period until such funding levels are agreed.

1.6 Section 4.2.7 of the Agreement is hereby deleted and replaced in its entirety with the following:

Potential Increases to the Research Funding Cap. In accordance with Section 4.1.7, in the event that NGM has exceeded or anticipates exceeding the Research Funding Budget for a given Research Program Year, and where at least one Research Program Development Candidate has been nominated under the Research Program, Merck shall increase the Research Funding Budget solely for the purpose of performing those IND-enabling or later staged activities for the relevant Research Program Year for all Research Program Development Candidates during such Research Program Year by up to the amount listed in the table below in the aggregate; provided, however, that, such amount shall be reduced each Research Program Year by an amount equal to the value of the activities that Merck performs, if any, in accordance with Section 4.1.7 (e.g., reduced by the number of Merck FTEs engaged in such activities at the FTE Rate and reduced by out-of-pocket costs Merck incurs in connection therewith).

FUNDING YEAR	AMOUNT OF PAYMENT
Research Program Years 2 through 5	[*]
Research Program Year 6 if there is no First Extension Period	[*]
Research Program Years 6 and 7 if there is a First Extension Period	[*]
Research Program Year 8 if there is a First Extension Period but no Second Extension Period	[*]
Research Program Years 8 and 9 if there is a First Extension Period and a Second Extension Period	[*]
Research Program Year 10 if there is a First Extension Period and a Second Extension Period	[*]

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In the event that Merck is unable or unwilling to undertake the relevant activities outlined in Section 4.1.7, such amount (less any reduction in connection with Merck's performance of activities outlined in Section 4.1.7) shall be allocated between FTE funding and the funding of External Costs as appropriate to reflect whether NGM is using its own FTEs to perform the relevant activity or a Third Party service provider; provided, however, that, for clarity, such Research Funding Budget shall not be automatically increased by such amounts, but rather shall be increased by the actual costs incurred in connection with the relevant activities, but in no event more than the amount listed in the above table (less any reduction in connection with Merck's performance of activities outlined in Section 4.1.7). Subject to the potential increase to the Research Funding Cap in accordance with this Section 4.2.7, the preceding sub-sections of this Section 4.2 shall continue in full force and effect with respect to accounting for and paying amounts owed and due under this Section 4.2 from Merck to NGM. Notwithstanding the foregoing, access to any such amounts shall be subject to discussion before the JEDC.

1.7 Section 4.4.1 of the Agreement is hereby deleted and replaced in its entirety with the following:

Portfolio Review. During the [*] period immediately prior to the last day of the Research Program Term (where either no extensions remain or Merck has not elected to extend the Research Program Term), Merck shall have the right to review with NGM the Collaboration Compounds then identified, and their associated Collaboration Targets, and determine if there are Collaboration Compounds for which Merck desires NGM to continue to conduct research and development, including, where successful, through POC (the "**Tail Compounds/Targets**") over the Tail Period. Merck shall have the right to require NGM to conduct such additional research and development of such Tail Compounds/Targets, subject to the limits set forth in Section 4.4.2. Notwithstanding the foregoing, Merck may terminate the Tail Period or any particular Tail Year upon [*] written notice to NGM, in which case NGM shall be responsible, at Merck's expense, upon Merck's election in writing, for transitioning any Clinical Studies then-being conducted to Merck or its designee, in which event the terms and conditions (including each Party's rights and obligations) of Sections 13.6.2(d) through (i), inclusive, shall apply to all such Tail Compounds, *mutatis mutandis*, subject only to transfers and the like being provided by NGM to Merck (and not by Merck to NGM), or, where Merck does not so elect to have transitioned to it any such Clinical Studies, NGM shall be

responsible for an orderly wind-down, in accordance with accepted pharmaceutical industry norms and ethical practices, of any such Clinical Studies or continuing any such Clinical Studies, at its own expense, and the applicable Collaboration Compounds shall become Non-Qualifying Compounds. Where Merck assumes the conduct of such Clinical Studies but terminates Development of the applicable Collaboration Compounds prior to completion of the first POC Trial, such Collaboration Compounds shall become Non-Qualifying Compounds. Where Merck assumes the conduct of such Clinical Studies, upon completion of the first POC Trial with respect to any Tail Compound, the Merck Option would remain in effect and be exercisable as set forth in Article 5, as though NGM had conducted such POC Trial, except that no Data Package shall be due from NGM with respect to such POC Trial, and Merck shall be required to exercise the Merck Option in the same timeframe as provided in Section 5.3.1, with such [*] period commencing once Merck has available to it the same information as would have been contained in the Data Package for such POC Compound. In addition, to the extent then-ongoing, all research activities that are not Clinical Studies under the Tail Period shall terminate, effective upon such effective date of termination, and in any event Merck shall have no obligation to pay for any External Costs or such work performed by the NGM FTEs after the effective date of such termination including the Research Funding after such date with respect thereto, and the licenses and rights granted by Merck to NGM in Section 4.1.8(a) will terminate and such licenses and rights shall revert to Merck and NGM and its Affiliates and sublicensees shall have no further rights to use any such Merck IP as contemplated by Section 4.1.8(a), except to the extent needed to conduct the activities set forth above in this Section 4.4.1.

1.8 Section 4.4.2(a) of the Agreement is hereby deleted and replaced in its entirety with the following:

NGM shall conduct the additional research and development of Tail Compounds/Targets as requested by Merck pursuant to Section 4.4.1 and in a manner consistent with this Article 4; provided, however, that Merck shall fund all such activity in the manner consistent with the funding of FTEs and out of pocket costs (including External Costs, to the extent applicable) set forth in Section 4.2, and provided, further, unless otherwise agreed to by the Parties, that such additional research and development effort and activities shall not exceed a total research and development commitment by NGM (as measured by the total annual budget for both FTEs and External Costs) in excess of: (a) for each of Tail Year 1 and Tail Year 2, [*] of the actual amount funded for FTEs and External Costs (exclusive of any amounts paid under Section 4.2.7) in the most recent Research Program Year that consisted of four (4) Calendar Quarters (the "**Last Full Research Program Year**"; for clarity, the Last Full Research Program Year shall be: (i) Research Program Year 5 if there is no First Extension Period, (ii) Research Program Year 7 if there is a First Extension Period but no Second Extension Period, and (iii) Research Program Year 9 if there is both a First Extension Period and a Second Extension Period); (b) for Tail Year 3, [*] of the actual amount funded for FTEs and External Costs in the Last Full Research Program Year (exclusive of any amounts paid under Section 4.2.7); and (c) for Tail Year 4, [*] of the actual amount funded for FTEs and External Costs in the Last Full Research Program Year (exclusive of any amounts paid under Section 4.2.7).

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

2. MISCELLANEOUS

2.1 First Year Funding. The Parties acknowledge and agree that all funding due to NGM from Merck under this Agreement for the period between the Effective Date and the Amendment Effective Date has been paid and received in full.

2.2 Effective. This Amendment will be effective upon the Amendment Effective Date.

2.3 Full Force. Except as expressly modified herein, all of the terms and conditions of the Agreement remain in full force and effect. To the extent that there are any inconsistencies between this Amendment and the Agreement, the terms of this Amendment govern and supersede the Agreement. Capitalized terms used in this Amendment that are not otherwise defined herein have the meanings such terms are given in the Agreement.

2.4 Entire Agreement. The Agreement and this Amendment contain the entire understanding of the Parties with respect to the subject matter hereof. They supersede all other agreements and understandings, negotiations, writings and commitments, either oral or written, express or implied, with respect to the subject matter hereof.

2.5 Counterparts. This Amendment may be signed in any number of counterparts (facsimile and electronic transmission included), each of which will be deemed an original, but all of which will constitute one and the same instrument. After facsimile or electronic transmission, the Parties agree to execute and exchange documents with original signatures.

IN WITNESS WHEREOF, the Parties have executed this Amendment as of the Amendment Effective Date.

MERCK SHARP & DOHME CORP.		**NGM BIOPHARMACEUTICALS, INC.**	
BY:	/s/ Joanne M. Smith-Farrell	BY:	/s/ William J. Rieflin
NAME:	Joanne M. Smith-Farrell, Ph.D.	NAME:	William J. Rieflin
TITLE:	Vice President Business Development Transactions	TITLE:	

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit 10.17

March 20, 2015

NGM Biopharmaceuticals, Inc.
630 Gateway Blvd.
South San Francisco, CA 94080

Re: Letter Agreement

Ladies and Gentlemen:

Pursuant to that certain Series E Preferred Stock Purchase Agreement (the "Purchase Agreement"), dated February 18, 2015, by and between Merck Sharp & Dohme Corp. ("Merck") and NGM Biopharmaceuticals, Inc. (the "Company"), Merck and the Company agree to be legally bound to the terms set forth below. Reference is made to the Research Collaboration, Product Development and License Agreement dated February 18, 2015, by and between Merck and the Company (the "Collaboration Agreement"). Capitalized but undefined terms used herein shall have the meaning set forth in the Collaboration Agreement.

1. Standstill. During the period commencing on the effective date of the Company's first firm commitment underwritten public offering of its Common Stock registered under the Securities Act of 1933, as amended (the "IPO") and ending on the earlier of: (x) the date the Company publicly announces its intent to consummate a Change of Control (as defined below), provided such announcement is not made by the Company in response to a violation by Merck of the covenant in Section 1(d) or a prior public disclosure of the intent to consummate such transaction by Merck through no fault of the Company, (y) the termination of the Collaboration Agreement and (z) the expiration of the Initial Research Program Term (the "Standstill Period"), neither Merck nor any of the Representatives (as defined below) of Merck will, in any manner, directly or indirectly, without the prior written consent of the Company:

(a) make, effect, initiate, cause or participate in: (i) any acquisition of Beneficial Ownership (as defined below) of securities of the Company to the extent that such acquisition would result in Merck's Beneficial Ownership of the Company exceeding 19.9% (the "Maximum Ownership Percentage"); or (ii) any "solicitation" of "proxies" (as those terms are used in the proxy rules of the Securities and Exchange Commission) or consents with respect to any securities of the Company; provided, however, that notwithstanding the provisions of this Section 1(a), if the number of shares of then outstanding common stock of the Company is reduced or if the ownership percentage of Merck is increased as a result of a repurchase by the Company of shares of common stock, or a stock split, stock dividend or a recapitalization of the Company, Merck shall not be required to dispose of its holdings of shares of the Company's common stock even though such action resulted in Merck's Beneficial Ownership increasing;

(b) form, join or participate in a "group" (as described in the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder (the "Exchange Act")) with respect to the Beneficial Ownership of any securities of the Company;

(c) publicly act, alone or in concert with others, to seek to control or influence the management, Board of Directors (the "Board") or policies of the Company;

(d) take any action that might require the Company to make a public announcement regarding any of the types of matters set forth in clause "(a)" of this Section 1;

(e) agree or offer to take, or encourage or publicly propose the taking of, any action referred to in clause "(a)," "(b)," "(c)" or "(d)" of this Section 1;

(f) assist, induce or encourage any other Person to take any action of the type referred to in clause "(a)," "(b)", "(c)," "(d)" or "(e)" of this Section 1; or

(g) enter into any discussions, negotiations, arrangement or agreement with any other Person relating to any of the foregoing.

Notwithstanding the foregoing, nothing in Section 1 above will be construed to preclude, prohibit, restrict or otherwise bar Merck from making confidential, non-public proposals to, or entering into confidential, non-public discussions, negotiations, arrangements or agreements with, the Company and with third parties with the express authorization of the Company, which Merck may request in a confidential, non-public manner, regarding a transaction or matter of the type described in this Section 1, (B) the mere voting in accordance with Section 2 hereof of any voting securities of the Company held by Merck shall not alone constitute a violation of any of this Section 1 and (C) nothing in this Section 1 shall prohibit Merck from proposing to the Company's Nominating and Corporate Governance Committee (and not pursuant to the advance notice provisions set forth in the Company's bylaws), in a confidential, non-public manner, potential director candidates for consideration by the Company's Nominating and Corporate Governance Committee, which candidates Merck believes would be in the best interest of the Company and its stockholders; provided, however, that the Company's Nominating and Corporate Governance Committee shall not be obligated to approve of any of the potential director candidates proposed by Merck.

2. Voting Obligations. During the period commencing on the date hereof and ending on the earlier of: (x) the termination of the Collaboration Agreement, (y) the expiration of the Initial Research Program Term and (z) the date on which Merck's Beneficial Ownership of the Company falls below 5% of the then outstanding capital stock of the Company on a fully diluted, as-converted basis (the "Proxy Period"), Merck hereby constitutes and appoints as its proxy and hereby grants a power of attorney to the Chairman of the Board (or, if there is at such time no Chairman of the Board, such other member of the Board as is authorized and delegated by the Board), with full power of substitution with respect to the voting of all matters, to represent and vote all shares of any securities of the Company for which Merck has Beneficial Ownership, in favor of any action recommended by and approved by the majority of the Board. Each of the proxy and power of attorney granted pursuant to the immediately preceding sentence is given in consideration of the agreements and covenants of Merck and the Company in connection with the transactions contemplated by the Purchase Agreement and Collaboration Agreement, and, as such, each is coupled with an interest and shall be irrevocable unless and until the end of the Proxy Period. Each party shall not hereafter, unless and until the end of the Proxy Period, purport to grant any other proxy or power of attorney with respect to any of Merck's shares of the Company, deposit any of such shares into a voting trust or enter into any agreement, arrangement or understanding with any person, directly or indirectly, to vote, grant any proxy or give instructions with respect to the voting of any of Merck's shares of the Company, in each case, with respect to any of the matters set forth herein; provided, however, that the foregoing proxy and power of attorney shall not be provided with respect to the voting of any securities of the Company: (i) in connection with the approval of a Change in Control or liquidation or dissolution of the Company; or (ii) in contravention of any applicable law.

3. Lock-up.

(a) Merck hereby agrees:

(i) during the period commencing on the effective date of the IPO and ending upon the expiration of the Initial Research Program Term (the "Lock-up Period"), it shall not, without the Company's prior written consent, Dispose (as defined below) of any shares of capital stock of the Company or any securities convertible into or exercisable or exchangeable for capital stock of the Company (including without limitation, Common Stock or such other securities that may be deemed to be beneficially owned by the undersigned in accordance with the rules and regulations of the Securities and Exchange Commission and securities that may be issued upon exercise of a stock option or warrant) (the "NGM Securities"); provided, however, that the foregoing shall not prohibit Merck from: (A) transferring such securities to an Affiliate; or (B) Disposing of any such securities in order to reduce the Beneficial Ownership of Merck to less than the Maximum Ownership Percentage, or such lesser percentage as advised in good faith and in writing by Merck's certified public accountants that would not require Merck to include in its financial statements its portion of the Company's financial results, in each case after the date that is 180 days following the effective date of the underwriting agreement in connection with the IPO to the extent such actions are not permitted pursuant to the lock-up restrictions placed upon the Company's other stockholders in connection with such IPO; and

(ii) in connection with the IPO, it will execute a lock-up agreement with the managing underwriter(s) of the IPO, agreeing that it will not, during the Lock-up Period, without such managing underwriter(s) written consent, undertake any of the actions set forth in Section 3(a) above. The underwriters in connection with the IPO are intended third-party beneficiaries of this subsection and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto. Merck further agrees to execute such agreements as may be reasonably requested by the managing underwriter(s) in connection with such registration that are consistent with this subsection or that are necessary to give further effect thereto.

(b) Notwithstanding any other provision of this Section 3, this Section 3 shall not prohibit or restrict any Disposition of NGM Securities by Merck in connection with (i) a bona fide tender offer by a Person other than Merck or the Company that is not opposed by the Company's board of directors and involving a change of control of the Company (as defined in the final sentence of this Section 3(b)); or (ii) an issuer tender offer by the Company; provided, however, that in the event that the tender offer is not completed, the NGM Securities shall remain subject to the restrictions contained in this Section 3. For the purposes of this Section 3(b) only, a "change of control" means the transfer, in one transaction or a series of related transactions, to a person or group of affiliated persons, of shares of capital stock of the Company if, after such transfer, the stockholders of the Company immediately prior to such transfer do not own at least twenty percent (20%) of the outstanding voting securities of the Company (or the surviving entity).

(c) Notwithstanding any other provision of this Section 3, this Section 3 shall terminate and have no further force or effect upon the expiration of the Initial Research Program Term.

4. Call Option. Subject to applicable law, including but not limited to any limitations of the Securities Act of 1933, as amended (the "Securities Act"), or the Exchange Act, the Company hereby grants to Merck, and Merck accepts from the Company, the irrevocable option (the "Call Option") to acquire from the Company, additional shares of the Company's Common Stock in a private placement to be consummated concurrently with the closing of the Company's IPO, priced at the same price as the shares sold in the IPO. The Company will provide Merck with written notice of the proposed price range of the IPO (the "Filing Notice") as soon as practicable once such range is determined, but in no event less than five (5) business days prior to the date the Company files an amendment to its Registration Statement on Form S-1 containing the proposed pricing range with the Securities and Exchange Commission (the "Filing Date"). Upon receipt of the Filing Notice and at any time on or before the Filing Date, Merck may exercise, by written notice to the Company, the Call Option and commit to

purchasing its desired amount of additional shares of the Company's Common Stock; provided, however, that such purchase would not result in Merck's ownership percentage of the Company exceeding the Maximum Ownership Percentage as of and including the shares sold in the Base Closing (as defined below). The closing of the sale of the shares to Merck under the Call Option shall occur simultaneously with the closing of the IPO solely with respect to firm-commitment shares purchased by the underwriters (the "Base Closing").

5. Put Option. Subject to applicable law, including but not limited to any limitations of the Securities Act or the Exchange Act, from the Filing Date to the business day immediately prior to the pricing of the IPO, in the event that Merck has not exercised the Call Option or does not otherwise have an ownership percentage of the Company equal to the Maximum Ownership Percentage, then the Company shall have an irrevocable option (the "Put Option") to require Merck, pursuant to written notice to Merck, to acquire from the Company additional shares of the Company's Common Stock (in an amount designated by the Company) in a private placement to be consummated concurrently with the closing of the Company's IPO, priced at the same price as the shares sold in the IPO; provided, however, that such purchase would not result in Merck's ownership percentage of the Company exceeding the Maximum Ownership Percentage as of and including the shares sold in the Base Closing. The Company must provide Merck with written notice of its exercise of the Put Option on or before the business day immediately prior to the pricing of the IPO. The closing of the sale of the shares to Merck under the Put Option shall occur simultaneously with the Base Closing.

6. Additional Sales of Common Stock.

(a) First Extension Period. In the event that, pursuant to the Collaboration Agreement, Merck notifies the Company in writing of its desire to extend the Research Program for the First Extension Period pursuant to Section 4.1.3 of the Collaboration Agreement (such notice, the "First Extension Notice"), then Merck shall have the irrevocable option (the "First Extension Option") to acquire from the Company, and the Company agrees to sell to Merck, $5,000,000 of shares of Common Stock (the "First Extension Shares") at a per share price of either: (x) the lowest price per share paid by an investor purchasing shares in the Company's most recent bona fide Preferred Stock financing, if the Company has not yet consummated the IPO; or (y) the last closing trade price for the Company's Common Stock on the exchange it is listed on the date the Company receives the First Extension Notice, if the Company has consummated its IPO; provided, however, that such purchase would not result in Merck's ownership percentage of the Company exceeding the Maximum Ownership Percentage as of and including the purchase of the First Extension Shares. The closing of the sale of the First Extension Shares to Merck pursuant to the First Extension Option shall occur on a date mutually agreeable to the Company and Merck, but in no event shall such date be later than 30 days from the date the Company receives the First Extension Notice (thereafter, the First Extension Option shall terminate). Moreover, the Company and Merck hereby agree that the issuance of the First Extension Shares shall be made pursuant to a stock purchase agreement with substantially the same representations and warranties as set forth in the Purchase Agreement.

(b) Second Extension Period. In the event that, pursuant to the Collaboration Agreement, Merck notifies the Company in writing of its desire to extend the Research Program for the Second Extension Period pursuant to Section 4.1.3 of the Collaboration Agreement (such notice, the "Second Extension Notice"), then Merck shall have the irrevocable option (the "Second Extension Option") to acquire from the Company, and the Company agrees to sell to Merck, $5,000,000 of shares of Common Stock (the "Second Extension Shares") at a per share price of either: (x) the lowest price per share paid by an investor purchasing shares in the Company's most recent bona fide Preferred Stock financing, if the Company has not yet consummated the IPO, or (y) the last closing trade price for the Company's Common Stock on the exchange it is listed on the date the Company receives the Second

Extension Notice, if the Company has consummated its IPO; provided, however, that such purchase would not result in Merck's ownership percentage of the Company exceeding the Maximum Ownership Percentage as of and including the purchase of the Second Extension Shares. The closing of the sale of the Second Extension Shares to Merck pursuant to the Second Extension Option shall occur on a date mutually agreeable to the Company and Merck, but in no event shall such date be later than 30 days from the date the Company receives the Second Extension Notice (thereafter, the Second Extension Option shall terminate). Moreover, the Company and Merck hereby agree that the issuance of the Second Extension Shares shall be made pursuant to a stock purchase agreement with substantially the same representations and warranties as set forth in the Purchase Agreement.

7. No Waiver. No failure or delay by the Company, Merck or any of its respective Representatives in exercising any right, power or privilege under this letter agreement will operate as a waiver thereof, and no single or partial exercise of any such right, power or privilege will preclude any other or future exercise thereof or the exercise of any other right, power or privilege under this letter agreement. No provision of this letter agreement can be waived except by means of a written instrument that is validly executed on behalf of each of the Company and Merck that refers specifically to the particular provision or provisions being waived.

8. Successors and Assigns; Applicable Law; Jurisdiction and Venue. This letter agreement will be binding upon the Company, Merck and each of its respective Representatives and their respective heirs, successors and assigns, and will inure to the benefit of the Company, Merck and each of its respective Representatives and their respective heirs, successors and assigns. This letter agreement will be governed by and construed in accordance with the laws of the State of California (without giving effect to principles of conflicts of laws). The Company, Merck and each of its Representatives: (a) irrevocably and unconditionally consent and submit to the jurisdiction of the state and federal courts located in the State of California for purposes of any action, suit or proceeding arising out of or relating to this letter agreement; (b) agree that service of any process, summons, notice or document by U.S. registered mail to the address set forth at the end of this letter agreement shall be effective service of process for any action, suit or proceeding brought pursuant to this agreement; (c) irrevocably and unconditionally waive any objection to the laying of venue of any action, suit or proceeding arising out of or relating to this letter agreement in any state or federal court located in the State of California; and (d) irrevocably and unconditionally waive the right to plead or claim, and irrevocably and unconditionally agree not to plead or claim, that any action, suit or proceeding arising out of or relating to this letter agreement that is brought in any state or federal court located in the State of California has been brought in an inconvenient forum.

9. Miscellaneous.

(a) The term "Affiliate" shall have the meaning set forth in Rule 12b-2 of the regulations promulgated under the Exchange Act.

(b) The term "Beneficial Ownership" shall have the meaning ascribed to it by Rule 13d-3 or any successor rule or regulation promulgated under the Exchange Act.

(c) The term "Change of Control" as used in this letter agreement will mean either an "Acquisition" or an "Asset Transfer" as each such term is defined in the Company's Amended and Restated Certificate of Incorporation, as amended.

(d) The term "Dispose of" as used in this letter agreement will mean to: (x) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, or publicly disclose the intention to make any offer, sale, pledge or disposition; or (y) enter into any swap, hedge or other agreement that transfers, in whole or in part, any of the economic consequences of ownership.

(e) The term "Person" as used in this letter agreement will be broadly interpreted to include any individual and any corporation, partnership, entity, group, tribunal or governmental authority.

(f) For purposes of this letter agreement, a party's "Representatives" will be deemed to include each Person that is or becomes: (i) a subsidiary, officer, director or other Affiliate of such party; or (ii) an employee, partner, attorney, advisor, accountant, agent or representative of such party or of any of such party's subsidiaries or other Affiliates.

(g) All notices, demands and other communications that may, or are required to, be given hereunder or with respect hereto shall be in writing, shall be delivered personally or sent by nationally recognized overnight delivery service, charges prepaid or by email and shall be deemed to have been given or made when personally delivered, the next business day after delivery to such overnight delivery service, or upon receipt if by email, as the case may be, as set forth for each party on the signature page hereto.

(h) This letter agreement, and the provisions set forth herein, may only be amended, altered, waived or terminated with the written consent of each of Merck and the Company.

(i) The bold-faced captions appearing in this letter agreement have been included only for convenience and shall not affect or be taken into account in the interpretation of this letter agreement.

(j) The invalidity or unenforceability of any provision of this letter agreement shall not affect the validity or enforceability of any other provision of this letter agreement. **(k)** This letter agreement constitutes the entire agreement between Merck and the Company regarding the subject matter hereof and supersedes any prior agreement between Merck and the Company regarding the subject matter hereof; provided, however, that any agreement or provisions regarding confidentiality between Merck and the Company shall continue in full force and effect.

Agreed and Accepted:

MERCK SHARP & DOHME CORP.

By: /s/ Kenneth C. Frazier
Title: Chairman, President and CEO
Address: 2000 Galloping Hill Road
Kenilworth, NJ 07033

NGM BIOPHARMACEUTICALS, INC.

By: /s/ William J. Rieflin
Title: CEO
Address: 630 Oakway Blud
South San Francisco, CA 94080

[Signature page to Letter Agreement - Merck]

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AND PURSUANT TO THE PROVISIONS OF ARTICLE 5 BELOW, MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND APPLICABLE STATE SECURITIES LAW OR, IN THE OPINION OF LEGAL COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER OF THESE SECURITIES, SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION IS EXEMPT FROM REGISTRATION.

WARRANT TO PURCHASE STOCK

Company:	NGM BIOPHARMACEUTICALS, INC., a Delaware corporation
Number of Shares:	25,500 (Subject to Section 1.7)
Class of Stock:	Series A Preferred
Warrant Price:	$1.00 per share
Issue Date:	February 3, 2009
Expiration Date:	The 10th anniversary after the Issue Date
Credit Facility:	This Warrant is issued in connection with the Equipment Advances referenced in the Loan and Security Agreement between Company and Silicon Valley Bank dated February 3, 2009.

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, SILICON VALLEY BANK (Silicon Valley Bank, together with any registered holder from time to time of this Warrant or any holder of the shares issuable or issued upon exercise of this Warrant, "Holder") is entitled to purchase the number of fully paid and nonassessable shares of the class of securities (the "Shares") of the Company at the Warrant Price, all as set forth above and as adjusted pursuant to Article 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant.

ARTICLE 1. EXERCISE.

1.1 Method of Exercise. Holder may exercise this Warrant by delivering a duly executed Notice of Exercise in substantially the form attached as Appendix 1 to the principal office of the Company. Unless Holder is exercising the conversion right set forth in Article 1.2, Holder shall also deliver to the Company a check, wire transfer (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Conversion Right. In lieu of exercising this Warrant as specified in Article 1.1, Holder may from time to time convert this Warrant, in whole or in part, into a number of Shares determined by dividing (a) the aggregate fair market value of the Shares or other securities otherwise issuable upon exercise of this Warrant minus the aggregate Warrant Price of such Shares by (b) the fair market value of one Share. The fair market value of the Shares shall be determined pursuant to Article 1.3.

1.3 Fair Market Value. If the Company's common stock is traded in a public market and the Shares are common stock, the fair market value of each Share shall be the closing price of a Share reported for the business day immediately before Holder delivers its Notice of Exercise to the Company (or in the instance where the Warrant is exercised immediately prior to the effectiveness of the Company's initial public offering, the "price to public" per share price specified in the final prospectus relating to such offering). If the Company's common stock is traded in a public market and the Shares are preferred stock, the fair market value of a Share shall be the closing price of a share of the Company's common stock reported for the business day immediately before Holder delivers its Notice of Exercise to the Company (or, in the instance where the Warrant is exercised immediately prior to the effectiveness of the Company's initial public offering, the initial "price to public" per share price specified in the final prospectus relating to such offering), in both cases, multiplied by the number of shares of the Company's common stock into which a Share is convertible. If the Company's common stock is not traded in a public market, the Board of Directors of the Company shall determine fair market value in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Promptly after Holder exercises or converts this Warrant and, if applicable, the Company receives payment of the aggregate Warrant Price, the Company shall deliver to Holder certificates for the Shares acquired and, if this Warrant has not been fully exercised or converted and has not expired, a new Warrant representing the Shares not so acquired.

1.5 Replacement of Warrants. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form and amount to the Company or, in the case of mutilation on surrender and cancellation of this Warrant, the Company shall execute and deliver, in lieu of this Warrant, a new warrant of like tenor.

1.6 Treatment of Warrant Upon Acquisition of Company.

1.6.1 "Acquisition". For the purpose of this Warrant, "Acquisition" means any sale, license, or other disposition of all or substantially all of the assets of the Company, or any reorganization, consolidation, or merger of the Company where Holders of the Company's securities before the transaction beneficially own less than 50% of the outstanding voting securities of the surviving entity after the transaction.

1.6.2 Treatment of Warrant at Acquisition.

A) Upon the written request of the Company, Holder agrees that, in the event of an Acquisition that is not an asset sale and in which the sole consideration is cash, either (a) Holder shall exercise its conversion or purchase right under this Warrant immediately prior to the consummation of such Acquisition and such exercise will be deemed effective immediately prior to the consummation of such Acquisition or (b) if Holder elects not to exercise the Warrant, this Warrant will expire upon the consummation of such Acquisition. The Company shall provide Holder with written notice of its request relating to the foregoing (together with such reasonable information as Holder may request in connection with such contemplated Acquisition giving rise to such notice), which is to be delivered to Holder not less than ten (10) days prior to the closing of the proposed Acquisition.

B) Upon the written request of the Company, Holder agrees that, in the event of an Acquisition that is an "arms length" sale of all or substantially all of the Company's assets (and only its assets) to a third party that is not an Affiliate (as defined below) of the Company (a "True Asset Sale"), either (a) Holder shall exercise its conversion or purchase right under this Warrant

immediately prior to the consummation of such Acquisition and such exercise will be deemed effective immediately prior to the consummation of such Acquisition or (b) if Holder elects not to exercise the Warrant, this Warrant will continue until the Expiration Date if the Company continues as a going concern following the closing of any such True Asset Sale. The Company shall provide Holder with written notice of its request relating to the foregoing (together with such reasonable information as Holder may request in connection with such contemplated Acquisition giving rise to such notice), which is to be delivered to Holder not less than ten (10) days prior to the closing of the proposed Acquisition.

C) Upon the written request of the Company, Holder agrees that, in the event of a stock-for-stock Acquisition of the Company by a publicly traded acquirer if, on the record date for the Acquisition, the fair market value of the Shares (or other securities issuable upon exercise of this Warrant) is equal to or greater than three (3) times the Warrant Price, Company may require the Warrant to be deemed automatically converted pursuant to Article 1.2 and the Holder shall participate in the Acquisition as a holder of the Shares (or other securities issuable upon exercise of the Warrant) on the same terms as other holders of the same class of securities of the Company.

D) Upon the closing of any Acquisition other than those particularly described in subsections (A), (B) and (C) above, the successor entity shall assume the obligations of this Warrant, and this Warrant shall be exercisable for the same securities, cash, and property as would be payable for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on the record date for the Acquisition and subsequent closing. The Warrant Price and/or number of Shares shall be adjusted accordingly.

As used herein "Affiliate" shall mean any person or entity that owns or controls directly or indirectly ten (10) percent or more of the stock of Company, any person or entity that controls or is controlled by or is under common control with such persons or entities, and each of such person's or entity's officers, directors, joint venturers or partners, as applicable.

1.7 Adjustments to Number of Shares for Equipment Advances Made. Upon each Equipment Advance under the Loan Agreement, the Number of Shares for which this Warrant is exercisable shall be automatically increased upon the date of such Equipment Advance by an amount equal to the number obtained by dividing (i) one and one-half percent (1.50%) of the dollar amount of such Equipment Advance by (ii) the Warrant Price as then in effect; provided, however, that in no event shall the Number of Shares for which this Warrant is exercisable be greater than 51,000, subject only to any adjustments pursuant to Article 2 hereof.

ARTICLE 2. ADJUSTMENTS TO THE SHARES.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend on the Shares payable in common stock, or other securities, then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without cost to Holder, the total number and kind of securities to which Holder would have been entitled had Holder owned the Shares of record as of the date the dividend occurred. If the Company subdivides the Shares by reclassification or otherwise into a greater number of shares or takes any other action which increase the amount of stock into which the Shares are convertible, the number of shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any reclassification, exchange, substitution, or other event that results in a change of the number and/or class of the securities issuable upon exercise or conversion of this Warrant, Holder shall be entitled to receive, upon exercise or conversion of this Warrant, the number and kind of securities and property that Holder would have received for the Shares if this Warrant had been exercised immediately before such reclassification, exchange, substitution, or other event. Such an event shall include any automatic conversion of the outstanding or issuable securities of the Company of the same class or series as the Shares to common stock pursuant to the terms of the Company's Certificate of incorporation upon the closing of a registered public offering of the Company's common stock. The Company or its successor shall promptly issue to Holder an amendment to this Warrant setting forth the number and kind of such new securities or other property issuable upon exercise or conversion of this Warrant as a result of such reclassification, exchange, substitution or other event that results in a change of the number and/or class of securities issuable upon exercise or conversion of this Warrant. The amendment to this Warrant shall provide for adjustments which shall be as nearly equivalent as may be practicable to the adjustments provided for in this Article 2 including, without limitation, adjustments to the Warrant Price and to the number of securities or property issuable upon exercise of the new Warrant. The provisions of this Article 2.2 shall similarly apply to successive reclassifications, exchanges, substitutions, or other events.

2.3 Adjustments for Diluting Issuances. The Warrant Price and the number of Shares issuable upon exercise of this Warrant or, if the Shares are preferred stock, the number of shares of common stock issuable upon conversion of the Shares, shall be subject to adjustment, from time to time in the manner set forth in the Company's Certificate of Incorporation as if the Shares were issued and outstanding on and as of the date of any such required adjustment. The provisions set forth for the Shares in the Company's Certificate of Incorporation relating to the above in effect as of the Issue Date may not be amended, modified or waived, without the prior written consent of Holder unless such amendment, modification or waiver affects the rights associated with the Shares in the same manner as such amendment, modification or waiver affects the rights associated with all other shares of the same series and class as the Shares granted to Holder.

2.4 No Impairment. The Company shall not, by amendment of its Certificate of Incorporation or through a reorganization, transfer of assets, consolidation, merger, dissolution, issue, or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed under this Warrant by the Company, but shall at all times in good faith assist in carrying out of all the provisions of this Article 2 and in taking all such action as may be necessary or appropriate to protect Holder's rights under this Article against impairment.

2.5 Fractional Shares. No fractional Shares shall be issuable upon exercise or conversion of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional share interest arises upon any exercise or conversion of the Warrant, the Company shall eliminate such fractional share interest by paying Holder the amount computed by multiplying the fractional interest by the fair market value of a full Share.

2.6 Certificate as to Adjustments. Upon each adjustment of the Warrant Price, the Company shall promptly notify Holder in writing, and, at the Company's expense, promptly compute such adjustment, and furnish Holder with a certificate of its Chief Financial Officer setting forth such adjustment and the facts upon which such adjustment is based. The Company shall, upon written request, furnish Holder a certificate setting forth the Warrant Price in effect upon the date thereof and the series of adjustments leading to such Warrant Price.

ARTICLE 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than (i) the price per share at which the Shares were last issued in an arms-length transaction in which at least $500,000 of the Shares were sold and (ii) the fair market value of one share of the class and series of the Shares as of the date of this Warrant as determined by the Company's Board of Directors, in its good faith business judgment.

(b) All Shares which may be issued upon the exercise of the purchase right represented by this Warrant, and all securities, if any, issuable upon conversion of the Shares, shall, upon issuance, be duly authorized, validly issued, fully paid and nonassessable, and free of any liens and encumbrances except for restrictions on transfer provided for herein or under applicable federal and state securities laws.

(c) The Company's capitalization table attached hereto as Schedule 1 is true and complete as of the Issue Date.

3.2 Notice of Certain Events. If the Company proposes at any time (a) to declare any dividend or distribution upon the outstanding shares of the same class and series as the Shares, whether in cash, property, stock, or other securities and whether or not a regular cash dividend; (b) to offer for sale subscription or sale pro rata to the holders of the outstanding shares of the same class and series as the Shares any additional shares of any class or series of the Company's stock, other than (i) pursuant to the Company's stock option or other compensatory plans, (ii) in connection with commercial credit arrangements or equipment financings, or (iii) in connection with strategic transactions for purposes other than capital raising; (c) to effect any reclassification or recapitalization of any of its stock; (d) to merge or consolidate with or into any other corporation, or sell, lease, license, or convey all or substantially all of its assets, or to liquidate, dissolve or wind up; or (e) offer holders of registration rights the opportunity to participate in an underwritten public offering of the Company's securities for cash, then, in connection with each such event, the Company shall give Holder: (1) at least 10 days prior written notice of the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which Holders of shares of the same class and series as the Shares will be entitled thereto) or for determining rights to vote, if any, in respect of the matters referred to in (a) and (b) above; (2) in the case of the matters referred to in (c) and (d) above at least 10 days prior written notice of the date when the same will take place (and specifying the date on which Holders of shares of the same class and series as the Shares will be entitled to exchange their shares for securities or other property deliverable upon the occurrence of such event); and (3) in the case of the matter referred to in (e) above, the same notice as is given to Holders of such registration rights. Company will also provide information requested by Holder reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements.

3.3 Registration Under Securities Act of 1933, as amended. The Company agrees that the Shares or, if the Shares are convertible into common stock of the Company, such common stock, shall have certain "piggyback," registration rights pursuant to and as set

forth in the Company's Investor Rights Agreement dated as of January__ , 2008 (the "Rights Agreement"). The provisions set forth in the Rights Agreement or similar agreement relating to the above in effect as of the Issue Date may not be amended, modified or waived without the prior written consent of Holder unless such amendment, modification or waiver affects the rights associated with the Shares in the same manner as such amendment, modification, or waiver affects the rights associated with all other shares of the same series and class as the Shares granted to Holder.

3.4 Market Stand-Off Agreement. Holder shall not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale, any shares of capital stock or other securities of the Company held by Holder, for a period of time specified by the managing underwriter(s) (not to exceed one hundred eighty (180) days or such longer period, as the underwriters or the Company shall request in order to facilitate compliance with FINRA Rule 2711 or NYSE Member Rule 472 or any successor or similar rule or regulation) following the effective date of a registration statement of the Company filed under the Act in connection with the Company's initial public offering; provided that all officers and directors of the Company and holders of at least one percent (1%) of the Company's voting securities are bound by and are entered into similar agreements. Holder agrees to execute and deliver such other agreements as may be reasonably requested by the Company and/or the managing underwriter(s) which are consistent with the foregoing and which are necessary to give further effect thereto. In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to such Common Stock (or other securities) until the end of such period. The underwriters of the Company's stock are intended third party beneficiaries of this Section 3.4 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

3.5 No Shareholder Rights. Except as provided in this Warrant, Holder will not have any rights as a shareholder of the Company until the exercise of this Warrant.

ARTICLE 4. REPRESENTATIONS, WARRANTIES OF HOLDER. Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the securities to be acquired upon exercise of this Warrant by Holder will be acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that Holder has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can

bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise or conversion hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Holder's investment intent as expressed herein. Holder recognizes that the Company has no obligation to register the Warrant or the Shares of the Company, or to comply with any exemption from such registration, except as expressly provided herein. Holder understands that this Warrant and the Shares issued upon any exercise or conversion hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless exemption from such registration and qualification are otherwise available. Holder is aware that neither the Warrant nor the Shares may be sold pursuant to Rule 144 adopted under the Act unless certain conditions are met, including, among other things, the existence of a public market for the shares, the availability of certain current public information about the Company, the resale following the required holding period under Rule 144 and the number of shares being sold during any three month period not exceeding specified limitations. Holder is aware that the conditions for resale set forth in Rule 144 have not been satisfied and that the Company presently has no plans to satisfy these conditions in the foreseeable future.

ARTICLE 5. MISCELLANEOUS.

5.1 This Warrant is exercisable in whole or in part at any time and from time to time on or before the Expiration Date.

5.2 Legends. This Warrant and the Shares (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) shall be imprinted with a legend in substantially the following form:

> THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AND PURSUANT TO THE PROVISIONS OF ARTICLE 5 OF THAT CERTAIN WARRANT TO PURCHASE STOCK ISSUED BY THE COMPANY TO SILICON VALLEY BANK DATED AS OF _____, MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND APPLICABLE STATE SECURITIES LAW OR, IN THE OPINION OF LEGAL COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER OF THESE SECURITIES, SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION IS EXEMPT FROM REGISTRATION.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issuable upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part without compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Silicon Valley Bank ("Bank") to provide an opinion of counsel if the transfer is to Bank's parent company, SVB Financial Group (formerly Silicon Valley Bancshares), or any other affiliate of Bank. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of current information as referenced in Rule 144(c), Holder represents that it has complied with Rule 144(d) and (e) in reasonable detail, the selling broker represents that it has complied with Rule 144(f), and the Company is provided with a copy of Holder's notice of proposed sale.

5.4 Transfer Procedure. After receipt by Bank of the executed Warrant, Bank will transfer all of this Warrant to SVB Financial Group by execution of an Assignment substantially in the form of Appendix 2. Subject to the provisions of Article 5.3 and upon providing the Company with written notice, SVB Financial Group and any subsequent Holder may transfer all or part of this Warrant or the Shares issuable upon exercise of this Warrant (or the Shares issuable directly or indirectly, upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, SVB Financial Group or any subsequent Holder will give the Company notice of the portion of the Warrant being transferred with the name, address and taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable). The Company may refuse to transfer this Warrant or the Shares to any person who directly competes with the Company, unless, in either case, the stock of the Company is publicly traded.

5.5 Notices. All notices and other communications from the Company to Holder, or vice versa, shall be deemed delivered and effective when given personally or mailed by first-class registered or certified mail, postage prepaid, at such address as may have been furnished to the Company or Holder, as the case may (or on the first business day after transmission by facsimile) be, in writing by the Company or such Holder from time to time. Effective upon receipt of the fully executed Warrant and the initial transfer described in Article 5.4 above, all notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

SVB Financial Group
Attn: Treasury Department
3003 Tasman Drive, HA 200
Santa Clara, CA 95054
Telephone: 408-654-7400
Facsimile: 408-496-2405

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

NGM BIOPHARMACEUTICALS, INC.
Attn: Luis Bayol
630 Gateway Blvd
South San Francisco, CA 94080
Telephone: (650) 243-5555
Facsimile: (650) 583-1646

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorneys' Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Automatic Conversion upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be converted pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised or converted, and the Company shall promptly deliver a certificate representing the Shares (or such other securities) issued upon such conversion to Holder.

5.9 Counterparts. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement.

5.10 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

[Signature page follows.]

"COMPANY"

Date: February 3, 2009

NGM BIOPHARMACEUTICALS, INC.

By: /s/ Jin-Long Chen
Name: Jin-Long Chen
(Print)
Title: Chairman of the Board, President or Vice President

By: /s/ Luis Bayol
Name: Luis Bayol
(Print)
Title: Chief Financial Officer, Secretary, Assistant Treasurer or Assistant Secretary

"HOLDER"

SILICON VALLEY BANK

By: _____

Name: _____
(Print)
Title: _____

[Signature page to Warrant to Purchase Stock.]

"COMPANY"

Date: February 3, 2009

NGM BIOPHARMACEUTICALS, INC.

By: _____

Name: _____
(Print)

Title: Chairman of the Board, President or Vice President

By: _____

Name: _____
(Print)

Title: Chief Financial Officer, Secretary, Assistant Treasurer or Assistant Secretary

"HOLDER"

SILICON VALLEY BANK

By: /s/ James Taylor

Name: James Taylor
(Print)

Title: Relationship Manager

[Signature page to Warrant to Purchase Stock.]

SCHEDULE 1

CAPITALIZATION TABLE

APPENDIX 1

NOTICE OF EXERCISE

1. Holder elects to purchase _____ shares of the Common/Series _____ Preferred [strike one] Stock of NGM BIOPHARMACEUTICALS, INC. pursuant to the terms of the attached Warrant, and tenders payment of the purchase price of the shares in full.

[or]

1. Holder elects to convert the attached Warrant into Shares/cash [strike one] in the manner specified in the Warrant. This conversion is exercised for _____ of the Shares covered by the Warrant.

[Strike paragraph that does not apply.]

2. Please issue a certificate or certificates representing the shares in the name specified below:

_____
Holders Name

_____

_____
(Address)

3. By its execution below and for the benefit of the Company, Holder hereby restates each of the representations and warranties in Article 4 of the Warrant as the date hereof.

HOLDER:

_____

By: _____
Name: _____
Title: _____
(Date): _____

APPENDIX 2

ASSIGNMENT

For value received, Silicon Valley Bank hereby sells, assigns and transfers unto

Name: SVB Financial Group
Address: 3003 Tasman Drive (HA-200)
Santa Clara, CA 95054

Tax ID: 91-1962278

that certain Warrant to Purchase Stock issued by NGM BIOPHARMACEUTICALS, INC. (the "Company"), on February 3, 2009 (the "Warrant") together with all rights, title and interest therein.

SILICON VALLEY BANK

By: _____
Name: _____
Title: _____

Date: _____

By its execution below, and for the benefit of the Company, SVB Financial Group makes each of the representations and warranties set forth in Article 4 of the Warrant and agrees to all other provisions of the Warrant as of the date hereof.

SVB FINANCIAL GROUP

By: _____
Name: _____
Title: _____