



NGM Bio Discloses Fourth Oncology Development Candidate, NGM831, an ILT3 Antagonist Antibody, Coinciding with Publication in Cancer Immunology Research

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- Publication describes NGM's discovery of ILT3's functional ligand, fibronectin, a key component of the tumor stroma
- ILT3-fibronectin interactions within the tumor microenvironment may form a stromal checkpoint that actively suppresses myeloid cell function and inhibits antitumor immunity
- NGM831 is designed to block ILT3's interaction with fibronectin, as well as with other ligands
- NGM plans to initiate first-in-human testing of NGM831 in the first half of 2022
- NGM's extensive research efforts focused on tumor stroma biology and myeloid reprogramming have yielded a portfolio of oncology product candidates designed to enhance antitumor immunity

SOUTH SAN FRANCISCO, Calif., Aug. 23, 2021 (GLOBE NEWSWIRE) -- NGM Biopharmaceuticals, Inc. (NGM) (Nasdaq: NGM), a biotechnology company focused on discovering and developing transformative therapeutics for patients, today disclosed its fourth oncology development candidate, NGM831, an antagonist antibody designed to block the interaction of ILT3 with fibronectin, as well as with other ligands. The announcement coincides with a [publication](#) in *Cancer Immunology Research*, a journal of the American Association for Cancer Research,¹ describing NGM's discovery of ILT3's functional ligand, fibronectin, an extracellular matrix protein that forms a fibrillar network within the tumor stroma. This discovery enabled the development of NGM831, which joins NGM's growing portfolio of wholly owned oncology antibody programs, including NGM120 (anti-GFRAL), NGM707 (anti-ILT2/ILT4) and NGM438 (anti-LAIR1).

NGM is a leader in research elucidating the central role that myeloid cells play in creating a suppressive environment around many solid tumors that restricts antitumor immunity. Myeloid cells often represent the most abundant tumor-associated immune cells and, in some tumors, myeloid cells alone account for more than half of the tumor mass². Through systematic screening, NGM was able to identify the suppressive receptors that are most highly enriched in myeloid cells, including four members of the LILR family: ILT2, ILT3, ILT4 and LAIR1. These receptors may play a central role in establishing the immune suppressive state of the tumor microenvironment³⁻⁶.

"The work we published on the ILT3-fibronectin pathway and our unveiling of NGM831 is yet another proof point of our robust in-house capabilities to deeply interrogate biology and rapidly translate our discoveries into investigational medicines designed to bring hope and meaningful change to patients with cancer and other serious diseases," said David J. Woodhouse, Ph.D., Chief Executive Officer at NGM. "With oncology programs now targeting ILT2/ILT4, ILT3 and LAIR1, we have constructed a comprehensive myeloid reprogramming strategy that is directed at multiple and distinct targets. Our planned biomarker strategy across the NGM707, NGM831 and NGM438 clinical development programs will help inform target patient populations for each product candidate."

NGM plans to initiate first-in-human testing of NGM831 in the first half of 2022. In July 2021, NGM [announced](#) the initiation of a Phase 1/2 study of NGM707 when given alone or in combination with KEYTRUDA® (pembrolizumab) in patients with advanced solid tumors, which is anticipated to enroll 180 patients. NGM also plans to initiate a Phase 1 study of NGM438 in advanced solid tumors in the first half of 2022.

As detailed in the publication, ILT3 is a fibronectin-binding inhibitory immune receptor that receives signals from the extracellular matrix to directly promote myeloid cell suppression. ILT3 is expressed specifically on tumor-associated myeloid cells, with particularly high expression on tolerogenic dendritic cells (DCs), myeloid-derived suppressor cells and M2 macrophages. This receptor is upregulated in several tumor types and is associated with poor survival^{7,8}. Moreover, fibronectin has been shown to be upregulated in multiple cancers and associated with tumor progression^{9,10}. For tumors in which both ILT3 and fibronectin are upregulated, the ILT3-fibronectin pathway may act as a stromal checkpoint to repress myeloid cell function.

Designed to inhibit ILT3 interactions with fibronectin and other ligands, NGM831 is expected to reprogram tolerogenic DCs into stimulatory cells with enhanced Fc receptor activity as well as to enhance T cell infiltration and activation. The findings published today are the latest research underpinning NGM's growing oncology portfolio focused on tumor stroma biology and myeloid reprogramming to enhance antitumor immunity.

"NGM has a strong track record of identifying important ligand-receptor interactions, thereby opening the door to impactful therapeutics," said Alex DePaoli, M.D., Chief Translational Officer at NGM Bio. "We are pleased to showcase how our team of scientists identified ILT3's functional ligand, fibronectin, and subsequently designed an antibody specifically tailored against the target. By inhibiting ILT3's interaction with fibronectin, NGM831 represents another potential approach to mobilize a patient's own immune system to fight tumors by shifting myeloid cells from a suppressive state to a stimulatory state and promoting antitumor immunity."

About NGM's Oncology Portfolio

NGM's currently disclosed oncology product candidates are all derived from the company's in-house discovery engine and are wholly owned by NGM. These oncology programs include: NGM120, a GFRAL antagonist antibody in a Phase 2 study for the treatment of metastatic pancreatic cancer; NGM707, an ILT2/ILT4 (LILRB1/LILRB2) dual antagonist antibody in a Phase 1/2 study for the treatment of advanced solid tumors; NGM831, an ILT3 (LILRB4) antagonist antibody, planned to enter into a Phase 1 study in advanced solid tumors in the first half of 2022; and NGM438, a LAIR1 antagonist antibody, also planned to enter into a Phase 1 study in advanced solid tumors in the first half of 2022.

Abbreviations (in Alphabetical Order)

GFRAL=Glia Cell-Derived Neurotrophic Factor Receptor Alpha-Like; ILT2=Immunoglobulin-Like Transcript 2; ILT3=Immunoglobulin-Like Transcript 3;

ILT4=Immunoglobulin-Like Transcript 4; LILR= Leukocyte Immunoglobulin-Like Receptor [ILT2 = LILRB1, ILT3=LILRB4, ILT4=LILRB2];

LAIR1=Leukocyte-Associated Immunoglobulin-Like Receptor 1

About NGM

NGM is a biopharmaceutical company focused on discovering and developing novel therapeutics based on scientific understanding of key biological pathways underlying retinal diseases, cancer and liver and metabolic diseases. We leverage our biology-centric drug discovery approach to uncover novel mechanisms of action and generate proprietary insights that enable us to move rapidly into proof-of-concept studies and deliver potential first-in-class medicines to patients. At NGM, we aspire to operate one of the most productive research and development engines in the biopharmaceutical industry. All of our therapeutics have been generated by our in-house discovery engine; today, we have seven disclosed programs, including four in Phase 2 or 2b studies, across three therapeutics areas. Visit us at www.ngmbio.com for more information.

Forward Looking Statements

Statements contained in this press release regarding matters that are not historical facts are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "may," "will," "efforts," "plans," "planned," "believe," "expected," "designed to," "anticipated," "aspire," "potential" and similar expressions (as well as other words or expressions referencing future events, conditions or circumstances) are intended to identify forward-looking statements. These statements include those related to: the therapeutic potential and potential benefits of NGM831, including NGM831's potential ability to block ILT3's interactions with fibronectin and other ligands; NGM's research efforts to develop a portfolio of oncology product candidates designed to enhance antitumor immunity; the potential of ILT3-fibronectin interactions to form a stromal checkpoint that actively suppresses myeloid cell function and inhibits antitumor immunity; NGM's myeloid reprogramming strategy; the potential for NGM to translate its discoveries into investigational medicines; the potential of NGM's planned biomarker strategy to inform target patient populations; planned initiations of Phase 1 studies of NGM831 and NGM438 and the anticipated timing thereof; anticipated enrollment in NGM's Phase 1/2 study of NGM707; and other statements that are not historical fact. Because such statements deal with future events and are based on NGM's current expectations, they are subject to various risks and uncertainties, and actual results, performance or achievements of NGM could differ materially from those described in or implied by the statements in this press release. These forward-looking statements are subject to risks and uncertainties, including, without limitation, risks and uncertainties associated with the costly and time-consuming pharmaceutical product development process and the uncertainty of clinical success, including risks related to failure or delays in successfully initiating, enrolling or completing clinical studies, the risk that NGM's ongoing or future clinical studies in humans may show that NGM707, NGM120, NGM438 and/or NGM831 are not tolerable and effective treatments for cancer patients or that the effects of inhibiting ILT3-fibronectin interactions are otherwise different than anticipated, and the risk that success in preclinical studies does not ensure that clinical trials evaluating NGM831 or NGM's other product candidates will generate the same results or otherwise provide adequate data to demonstrate the effectiveness and safety of such product candidates; the ongoing COVID-19 pandemic, which has adversely affected, and could materially and adversely affect in the future, NGM's business and operations, including NGM's ability to timely supply, initiate, enroll and complete its ongoing and future clinical studies; the time-consuming and uncertain regulatory approval process; NGM's reliance on third-party manufacturers for NGM707, NGM120, NGM438, NGM831 and its other product candidates; the sufficiency of NGM's cash resources, including to fund its wholly owned programs, and its need for additional capital; and other risks and uncertainties affecting NGM and its development programs, as well as those discussed in the section titled "Risk Factors" in NGM's quarterly report on Form 10-Q for the quarter ended June 30, 2021 and future filings and reports that NGM makes from time to time with the United States Securities and Exchange Commission. Except as required by law, NGM assumes no obligation to update these forward-looking statements or to update the reasons if actual results differ materially from those anticipated in the forward-looking statements.

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1 = Paavola et al, Cancer Immunology Research, 2021

2 = Zhang et al, PNAS 2019

3 = Siu et al, ESMO Virtual Congress 2020

4 = Carosella et al, Cell 2021

5 = Singh et al, Molecular Cancer Research, 2021

6 = Peng et al, Nature Communications, 2020

7 = L de Goeje et al, Oncoimmunology 2015

8 = Liu et al, Pathology - Research and Practice, 2018

9 = Saito et al, Molecular Medicine Reports, 2008

10 = Niknami et al, EXCLI Journal, 2017