



gritstone

ONCOLOGY

bluebird bio and Gritstone Oncology Announce Strategic Collaboration to Develop Novel Cancer Cell Therapies

August 23, 2018

CAMBRIDGE, MASS. and EMERYVILLE, CALIF. – Aug. 23, 2018 – [bluebird bio, Inc.](#) (Nasdaq: BLUE) and [Gritstone Oncology, Inc.](#) today announced a collaboration to research, develop and commercialize products for the treatment of cancer using cell therapy. Gritstone Oncology will leverage its proprietary EDGE™ artificial intelligence platform to analyze specific tumor types to identify tumor-specific targets and natural T-cell receptors (TCRs) directed to those targets for use in bluebird bio's established cell therapy platforms. bluebird bio will conduct all development, manufacturing and commercial activities. Gritstone Oncology will utilize its proprietary technology platform to enable patient selection for clinical development of such therapies.

"By combining our expertise in gene and cell therapy with Gritstone Oncology's unique target identification and TCR technology, we hope to bring the power of cell therapy to a broader set of newly-validated targets, enabling us to treat previously unaddressable patient populations," said Philip Gregory, D.Phil., chief scientific officer of bluebird bio. "As we expand our immuno-oncology focus and portfolio, this collaboration with Gritstone Oncology is highly complementary to our goal of rapidly advancing novel cellular therapies with the potential to transform the lives of people with cancer, particularly in solid tumor indications."

"As the field of immuno-oncology has evolved, it has become clear that targeting T-cell therapeutics to solid tumors in a highly specific manner is vital to enable potent tumor cell killing with sparing of normal tissues," said Andrew Allen, M.D., Ph.D., president and chief executive officer of Gritstone Oncology. "We believe that our artificial intelligence-based approach to identifying tumor-specific targets and corresponding, naturally occurring TCRs, combined with bluebird bio's expertise in gene and cell therapy, will allow us to develop cellular immunotherapies against differentiated oncology targets. We look forward to collaborating with the bluebird bio team in order to develop innovative treatments for patients in need."

Under the terms of the agreement, Gritstone Oncology will provide 10 tumor-specific targets across several tumor types and, in certain cases, TCRs directed to those targets to bluebird bio. Gritstone Oncology will receive \$20 million in an upfront payment and an additional \$10 million in the form of a Series C preferred equity investment. In addition, Gritstone Oncology is eligible for significant development, regulatory and commercial milestones on any therapies, and tiered royalties on certain approved therapies.

About bluebird bio, Inc.

With its lentiviral-based gene therapies, T cell immunotherapy expertise and gene editing capabilities, bluebird bio has built a pipeline with broad potential application in severe genetic diseases and cancer.

bluebird bio's gene therapy clinical programs include investigational treatments for cerebral adrenoleukodystrophy, transfusion-dependent β -thalassemia, also known as β -thalassemia major, and severe sickle cell disease.

bluebird bio's oncology pipeline is built upon the company's lentiviral gene delivery and T cell engineering, with a focus on developing novel T cell-based immunotherapies, including chimeric antigen receptor (CAR T) and T cell receptor (TCR) therapies. The company's lead oncology programs are anti-BCMA CAR T programs partnered with Celgene.

bluebird bio's discovery research programs include utilizing megaTAL/homing endonuclease gene editing technologies with the potential for use across the company's pipeline.

bluebird bio has operations in Cambridge, Massachusetts; Seattle, Washington; Durham, North Carolina and Zug, Switzerland.

About Gritstone Oncology, Inc.

Gritstone Oncology is developing tumor-specific cancer immunotherapies to fight multiple cancer types. The company has built its approach on two key pillars—first, a proprietary machine learning-based platform, Gritstone EDGE™, which provides the powerful ability to predict from a routine tumor biopsy the tumor-specific neoantigens, or TSNA, that are presented on a patient's tumor cells; and second, the ability to develop and manufacture potent immunotherapies utilizing patients' TSNA to drive the patient's immune system to attack and destroy tumors. Gritstone brings together distinguished scientific founders, an experienced and diverse management team, a seasoned and successful board of directors and deep financial backing from Versant Ventures, The Column Group, Clarus Funds, Frazier Healthcare Partners, Redmile Group, Casdin Capital, Lilly Asia Ventures, Trinitas Capital, GV, Alexandria Venture Investments and Bay City Capital. More information can be found at [www.gritstone.com](#) or [@gritstoneonc](#).

bluebird bio Forward-Looking Statements

This release contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding the research, development and advancement of bluebird bio’s product candidates and immuno-oncology research program, including its TCR research program and those shared with Gritstone Oncology, the amounts of milestone and royalties potentially payable to Gritstone Oncology, and the benefits of each company’s strategic plans and focus. Any forward-looking statements are based on management’s current expectations of future events and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in or implied by such forward-looking statements. These risks and uncertainties include, but are not limited to, the risk that the research programs for these targets will be unsuccessful and not identify any viable product candidates, the risk that our collaboration with Gritstone Oncology will not continue or will not be successful, the risk of cessation or delay of any planned clinical studies and/or our development of our product candidates, and the risk that any one or more of our product candidates will not be successfully developed and commercialized. For a discussion of other risks and uncertainties, and other important factors, any of which could cause our actual results to differ from those contained in the forward-looking statements, see the section entitled “Risk Factors” in our most recent quarterly report on Form 10-Q, as well as discussions of potential risks, uncertainties, and other important factors in our subsequent filings with the Securities and Exchange Commission. All information in this press release is as of the date of the release, and bluebird bio undertakes no duty to update this information unless required by law.

Gritstone Oncology Contacts

Dan Budwick
1AB
(973) 271-6085
dan@1abmedia.com

or

Alexandra Santos
Wheelhouse Life Science Advisors
asantos@wheelhousesa.com

bluebird bio Contacts

Investor Relations
Elizabeth Pingpank, 617-914-8736
epingpank@bluebirdbio.com

or

Media Relations
Stephanie Fagan, 201-572-9581
sfagan@bluebirdbio.com