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Mustang Bio Announces Preclinical Data on Potency of its CAR T Cells in Glioblastoma Published in JCI Insight

Data demonstrate superior antitumor potency of glioblastoma-targeted CD4+ CAR T cells over CD8+ subset

NEW YORK, May 30, 2018 (GLOBE NEWSWIRE) -- Mustang Bio, Inc. ("Mustang") (NASDAQ:MBIO), a Fortress Biotech (NASDAQ:FBIO) Company focused on the development of novel immunotherapies based on proprietary chimeric antigen receptor engineered T cell (CAR T) technology, today announced the publication of preclinical data demonstrating that glioblastoma (GBM)-targeted CD4+ CAR T cells mediate superior antitumor activity over CD8+ CAR T cells. The results were published in the May 17, 2018, edition of *JCI Insight*, a peer-reviewed journal of the American Society for Clinical Investigation. Mustang licensed the IL13R α 2-specific CAR (MB-101) technology used in this preclinical study from the City of Hope National Medical Center ("City of Hope").

Manuel Litchman, M.D., President and Chief Executive Officer of Mustang, said, "Optimizing T cell potency has the potential to enhance the antitumor efficacy of CAR T therapies in challenging solid tumors, which includes engineering the appropriate composition of CD4+ and CD8+ subsets. This important study conducted by our research partner City of Hope demonstrated the superior antitumor effect of CD4+ over CD8+ T cells in glioblastoma models. Optimizing T cell potency is one of many avenues Mustang is exploring to improve CAR T efficacy, and we look forward to the application of this research in the ongoing Phase 1 trial of our MB-101 IL13R α 2-specific CAR T therapy in patients with glioblastoma."

Dr. Christine Brown, Heritage Provider Network Professor in Immunotherapy and Associate Director of the T Cell Therapeutics Research Laboratory at City of Hope, said, "This study provides important insight into the differences between CD4+ and CD8+ CAR T cells for maintaining killing potency and resisting exhaustion under conditions of high disease burden. These findings are part of our larger efforts to develop more powerful CAR therapies for the treatment of brain tumors."

In the study, City of Hope investigated the antitumor effect of CD4+ and CD8+ CAR T cells targeting the GBM-associated antigen IL-13 receptor α 2 (IL13R α 2) in mouse models. Upon stimulation with IL13R α 2+ GBM cells, the CD8+ CAR T cells exhibited robust short-term effector function but became rapidly exhausted. In comparison, CD4+ CAR T cells persisted after tumor challenge and sustained effector potency.

Mixing with CD4+ CAR T cells failed to improve the effector dysfunction of CD8+ CAR T cells, and CD4+ CAR T cell effector potency was weakened when applied with CD8+ CAR T cells. In orthotopic GBM models, CD4+ outperformed CD8+ CAR T cells, specifically with respect to long-term antitumor response. Maintenance of the CD4+ subset was positively correlated with the recursive killing ability of CAR T cell products derived from GBM patients.

The full article can be accessed on the *JCI Insight* website: <https://insight.jci.org/articles/view/99048>.

About Mustang Bio

Mustang Bio, Inc. (“Mustang”), a Fortress Biotech Company, is a clinical-stage biopharmaceutical company focused on the development and commercialization of novel cancer immunotherapy products designed to leverage the patient’s own immune system to eliminate cancer cells. Mustang aims to acquire rights to these technologies by licensing or otherwise acquiring an ownership interest, to fund research and development, and to outlicense or bring the technologies to market. Mustang has partnered with the City of Hope National Medical Center and the Fred Hutchinson Cancer Research Center to develop proprietary chimeric antigen receptor (“CAR”) engineered T cell (“CAR T”) therapies across many cancers, and with Harvard Medical School’s Beth Israel Deaconess Medical Center and the Harvard Stem Cell Institute for the development of CRISPR/Cas9-enhanced CAR T therapies in hematologic malignancies and solid tumors. Mustang is registered under the Securities Exchange Act of 1934, as amended, and files periodic reports with the U.S. Securities and Exchange Commission. For more information, visit www.mustangbio.com.

About Fortress Biotech

Fortress Biotech, Inc. (“Fortress”) is a biopharmaceutical company dedicated to acquiring, developing and commercializing novel pharmaceutical and biotechnology products. Fortress develops and commercializes products both within Fortress and through certain of its subsidiary companies, also known as Fortress Companies. In addition to its internal development programs, Fortress leverages its biopharmaceutical business expertise and drug development capabilities and provides funding and management services to help the Fortress Companies achieve their goals. Fortress and the Fortress Companies may seek licensing arrangements, acquisitions, partnerships, joint ventures and/or public and private financings to accelerate and provide additional funding to support their research and development programs. For more information, visit www.fortressbiotech.com.

Forward-Looking Statements

This press release may contain “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, each as amended. Such statements include, but are not limited to, any statements relating to our growth strategy and product development programs and any other statements that are not historical facts. Forward-looking statements are based on management’s current expectations and are subject to risks and uncertainties that could negatively affect our business, operating results, financial condition and stock value. Factors that could cause actual results to differ materially from those currently anticipated include: risks relating to our growth strategy; our ability to obtain, perform under and maintain financing and strategic agreements and relationships; risks relating to the results of research and development activities; risks relating to the timing of starting and completing clinical trials; uncertainties relating to preclinical and clinical testing; our dependence on third-party suppliers; our ability

to attract, integrate and retain key personnel; the early stage of products under development; our need for substantial additional funds; government regulation; patent and intellectual property matters; competition; as well as other risks described in our SEC filings. We expressly disclaim any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in our expectations or any changes in events, conditions or circumstances on which any such statement is based, except as required by law.

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