Beam Therapeutics Presents New Non-human Primate (NHP) Data Demonstrating Proof-of-concept for ESCAPE, a Non-genotoxic, Antibody-based Conditioning Approach to Treating Sickle Cell Disease, at American Society of Hematology (ASH) Annual Meeting

December 8, 2024

NHP Data Showed CD117 Monoclonal Antibody (mAb) Conditioning Successfully Achieved Long-term Engraftment of Base-edited Hematopoietic Stem Cells and Induced Robust Levels of Hemoglobin F

mAb Dosing Well Tolerated Without Need for Supportive Care

Beam on Track to Initiate Phase 1-enabling Studies by End of 2024

Beam to Host Investor Event on Dec. 8, 2024, at 8 p.m. PT

SAN DIEGO, Dec. 08, 2024 (GLOBE NEWSWIRE) -- Beam Therapeutics Inc. (Nasdaq: BEAM), a biotechnology company developing precision genetic medicines through base editing, today announced new data for its Engineered Stem Cell Antibody Evasion (ESCAPE) conditioning platform. Presented in an oral session at the 66th American Society of Hematology (ASH) Annual Meeting and Exposition in San Diego, the data demonstrated that conditioning and *in vivo* selection with an anti-CD117 antibody enabled engraftment of base-edited hematopoietic stem cells (HSCs) and induced robust, durable production of fetal hemoglobin (HbF) in a non-human primate (NHP) model.

ESCAPE is comprised of two investigational drug products: BEAM-103, an anti-CD117 monoclonal antibody (mAb) that is designed to suppress and/or eliminate hematopoietic stem and progenitor cells that express CD117, and BEAM-104, a cell therapy that includes an edit to the promoter region of the HBG1/2 genes intended to elevate HbF, plus an additional edit to CD117 designed to prevent binding of BEAM-103, allowing the edited cells to function normally and evade targeting by the antibody. Together, this approach aims to provide a non-genotoxic alternative to traditional transplant myeloablative conditioning. The company intends to advance BEAM-103 and BEAM-104 for development in sickle cell disease (SCD) and beta-thalassemia.

“The data presented today at ASH represent a potential paradigm shift—the first in nearly 70 years—in transplant medicine,” said Giuseppe Ciaramella, Ph.D., president of Beam Therapeutics. “For decades, the field has relied on genotoxic conditioning regimens, which come with significant side effects and risks, limiting access to potentially curative therapies for many patients. With ESCAPE, we are moving toward a less toxic, more accessible approach that could expand the eligible patient population, potentially making gene editing therapies a viable option for patients with both severe and more moderate disease. These proof-of-concept data provide a strong foundation for advancing ESCAPE into the clinic, with the potential to transform transplant medicine for patients with sickle cell disease, beta-thalassemia and beyond.”

In the preclinical study, conducted in the laboratory of John Tisdale, M.D., at the National Institutes of Health, CD34+ cells from three rhesus NHPs were multiplex base-edited *ex vivo* with BEAM-104 to introduce edits to CD117 and to HBG1/2. NHPs were then conditioned with only the BEAM-103 CD117 mAb at doses of either 10 mg/kg or 25 mg/kg, seven days prior to transplantation. Post-transplant, additional BEAM-103 treatments were administered to sustain a negative selective pressure on unedited cells.

Highlights from the study include the following:

- **Administration of the BEAM-104 edited cells to antibody-conditioned animals led to long-term engraftment.**
  - Long term engraftment of HSCs in the marrow was demonstrated by the presence of edited cells in the periphery beyond 6 months.
- **Dosing with the BEAM-103 mAb led to rapid and near complete replacement of wild-type erythroid cells by edited cells, leading to early induction of therapeutically relevant levels of HbF.**
  - Levels of cells containing HbF reached >80% post-transplant.
  - All NHPs achieved >40% γ-globin, a key constituent of HbF, post-transplant.
  - Rapid and sustained reactivation of HbF post-transplant showed promise of therapeutic benefit in SCD patients.
- **BEAM-103 dosing was well tolerated with no need for transfusions, antibiotics or additional supportive care.**
  - In contrast to busulfan conditioning, NHPs that received BEAM-103 demonstrated only minor decline in neutrophil counts and platelet levels, an expected outcome of the mAb targeting CD117 on wild-type hematopoietic stem and progenitor cells.
- **The CD117 base-edit showed normal receptor function *in vitro* and *in vivo.***
  - No changes to CD117 signaling, structure or expression were observed following editing.
  - In NHP studies, normal hematopoietic reconstitution was observed post-transplantation.

ASH Investor Event Information

Beam will host a live and webcast investor event at 8:00 p.m. PT on Dec. 8, 2024, in San Diego to review the key presentations from this year’s ASH meeting. The event will be webcast live and can be accessed under “Events & Presentations” in the Investors section of the company's website at www.beamtx.com. The archived webcast will be available on the company's website beginning approximately two hours after the event.

About Beam Therapeutics
Beam Therapeutics (Nasdaq: BEAM) is a biotechnology company committed to establishing the leading, fully integrated platform for precision genetic medicines. To achieve this vision, Beam has assembled a platform with integrated gene editing, delivery and internal manufacturing capabilities. Beam's suite of gene editing technologies is anchored by base editing, a proprietary technology that is designed to enable precise, predictable and efficient single base changes, at targeted genomic sequences, without making double-stranded breaks in the DNA. This has the potential to enable a wide range of potential therapeutic editing strategies that Beam is using to advance a diversified portfolio of base editing programs. Beam is a values-driven organization committed to its people, cutting-edge science, and a vision of providing life-long cures to patients suffering from serious diseases.

Cautionary Note Regarding Forward-Looking Statements
This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Investors are cautioned not to place undue reliance on these forward-looking statements, including, but not limited to, statements related to: the therapeutic applications and potential of our technology, including with respect to SCD, beta-thalassemia, and ESCAPE; our plans, and anticipated timing, to advance our programs; the clinical trial designs and expectations for ESCAPE; and our ability to develop life-long, curative, precision genetic medicines for patients through base editing. Each forward-looking statement is subject to important risks and uncertainties that could cause actual results to differ materially from those expressed or implied in such statement, including, without limitation, risks and uncertainties related to: our ability to develop, obtain regulatory approval for, and commercialize our product candidates, which may take longer or cost more than planned; our ability to raise additional funding, which may not be available; our ability to obtain, maintain and enforce patent and other intellectual property protection for our product candidates; the uncertainty that our product candidates will receive regulatory approval necessary to initiate human clinical trials; that preclinical testing of our product candidates and preliminary or interim data from preclinical studies and clinical trials may not be predictive of the results or success of ongoing or later clinical trials; that initiation and enrollment of, and anticipated timing to advance, our clinical trials may take longer than expected; that our product candidates or the delivery modalities we rely on to administer them may cause serious adverse events; that our product candidates may experience manufacturing or supply interruptions or failures; risks related to competitive products; and the other risks and uncertainties identified under the headings "Risk Factors Summary" and "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2023, our Quarterly Report on Form 10-Q for the quarter ended September 30, 2024 and in any subsequent filings with the Securities and Exchange Commission. These forward-looking statements speak only as of the date of this press release. Factors or events that could cause our actual results to differ may emerge from time to time, and it is not possible for us to predict all of them. We undertake no obligation to update any forward-looking statement, whether as a result of new information, future developments or otherwise, except as may be required by applicable law.

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