Beam Therapeutics Presents Preclinical Data Highlighting Utility and Durability of BEAM-301 to Correct a Glycogen Storage Disease Type I Deficiency Disease-Causing Mutation at ESGCT

October 25, 2023

Single Dose of BEAM-301 Restored Clinically Meaningful Endpoints in In Vivo *Rodent Disease Models Out to at Least One Year*

Company Plans to Submit U.S. Investigational New Drug (IND) Application for BEAM-301 in the First Half of 2024

CAMBRIDGE, Mass., Oct. 25, 2023 (GLOBE NEWSWIRE) -- Beam Therapeutics Inc. (Nasdaq: BEAM), a biotechnology company developing precision genetic medicines through base editing, today reported new preclinical data demonstrating the ability of its *in vivo* drug candidate, BEAM-301, to directly correct the R83C mutation, one of the primary disease-causing mutations of glycogen storage disease type Ia (GSDIa). The data were presented today in an oral presentation titled “A Single, Systemic Administration of BEAM-301 Mitigated Fasting Hypoglycemia One Year after Dosing in a Transgenic Mouse Model of Glycogen Storage Disease Type-Ia” at the 30th Annual European Society of Gene & Cell Therapy (ESGCT) Congress in Brussels.

“GSDIa is a devastating disease that significantly impacts an individual’s quality of life and puts them at consistent risk of hypoglycemia, coma and potentially death. Today, there are limited options, requiring patients to adhere to burdensome dietary regimens in order to maintain blood glucose at an appropriate level,” said Giuseppe Ciaramella, Ph.D., president of Beam. “We designed BEAM-301 with these patients in mind, aiming to create a one-time treatment that could correct the disease-causing mutation and improve their glucose control and other metabolic parameters. Today’s data continue to show that treatment with BEAM-301 yielded potent and durable liver editing that translated into normalization of blood glucose without continuous supplementation and improved metabolic parameters and survival in a mouse model of homozygous GSDIa.”

Dr. Ciaramella continued, “These compelling and durable data support the continued development of BEAM-301 as a potential treatment to address the unmet need for these patients. We’re encouraged by the recent approvals of IND applications for clinical trials investigating both nuclease editing and base editing therapeutics by the U.S. FDA, and believe it indicates the agency’s support of the benefit risk profile of gene editing to address diseases with unmet medical needs. We remain focused on the submission of our IND application in the first half of next year and plan to conduct an initial BEAM-301 clinical trial for the treatment of GSDIa at a select number of sites in the United States."

GSDIa is a genetic disease caused by mutations in the *G6PC* gene encoding glucose-6-phosphatase (G6Pase), a predominantly liver-expressed enzyme vital to glucose metabolism. The prevalent pathogenic variant, *G6PC-p.R83C,* completely abolishes G6Pase activity and is associated with life-threatening fasting hypoglycemia as well as long-term complications impacting the liver and kidney. BEAM-301 is a liver-targeting lipid-nanoparticle (LNP) formulation containing base editing reagents optimized to correct the R83C mutation.

Beam evaluated the ability of its novel base-editing candidate, BEAM-301, to correct the R83C mutation in a transgenic GSDIa mouse model that is homozygous for human *G6PC*-p.R83C (huR83C) and deficient of G6Pase activity. Beam previously demonstrated that treatment with a single dose of BEAM-301 yielded up to ~60% base-editing efficiency to correct the R83C mutation and was associated with restored G6Pase activity in the livers of young huR83C mice. Today’s data build on those findings and show that a single dose of BEAM-301 yielded:

- Long-term survival of treated mice out to at least one year post treatment, compared to untreated GSDIa mice that exhibit poor survival of only a few weeks;
- Sustained editing of G6PC in liver, confirmed by the normalization of glucose homeostasis and glycogen accumulation at one year (the longest time point assessed);
- Normal growth and liver size throughout one year post treatment relative to untreated homozygous mutant mice that developed three-fold larger liver size by three weeks of age;
- Normalization of circulating glucose and metabolites, including cholesterol, triglycerides, lactic and uric acid; and,
- Prevention of hypoglycemia during several, intermittent 24-hour fasts up through one year post dosing.

These findings support the potential of BEAM-301 to directly correct the disease-causing R83C mutation with a single dose. Beam plans to submit a U.S. IND application in the first half of 2024 for authorization to initiate clinical trials of BEAM-301.

About Glycogen Storage Disease Type Ia
GSDIa is an autosomal recessive disorder caused by mutations in the G6PC gene that disrupt a key enzyme, glucose-6-phosphatase (G6Pase), involved in maintaining glucose homeostasis. Inhibition of G6Pase activity results in low fasting blood glucose levels that can be fatal. Beam is advancing BEAM-301, composed of a guide RNA and an mRNA encoding an adenine base editor (ABE) delivered via LNP, which aims to directly correct the R83C mutation, one of the primary disease-causing mutations of GSDIa.

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 that includes a suite of gene editing and delivery technologies and is in the process of building 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 GSDIa; our plans, and anticipated timing, to submit a regulatory application for authorization to initiate clinical trials of BEAM-301; 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 potential impact of pandemics and other health emergencies, including their impact on the global supply chain; the uncertainty that our product candidates will receive regulatory approval necessary to initiate human clinical studies; 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 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, 2022, our Quarterly Report on Form 10-Q for the quarter ended March 31, 2023, our Quarterly Report on Form 10-Q for the quarter ended June 30, 2023, 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.

Contacts:
Investors:
Holly Manning
THRUST Strategic Communications
holly@thrustsc.com

Media:
Dan Budwick
1AB
dan@1abmedia.com