LogicBio Therapeutics Announces Successful Repopulation of Diseased Livers in Mice with Healthy Corrected Hepatocytes in Two New Indications Using GeneRide™ Genome Editing Technology

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- Data from mouse models in hereditary tyrosinemia type 1 and Wilson disease showed in vivo edited hepatocytes expanded and substantially repopulated diseased livers, correlating with improvements in disease burden

LEXINGTON, Mass., Oct. 21, 2021 /PRNewswire/ -- LogicBio Therapeutics, Inc. (Nasdaq:LOGC), a clinical-stage genetic medicine company, today is slated to present new preclinical data on its GeneRide™ platform at the European Society of Gene and Cell Therapy (ESGCT) Virtual Congress 2021, taking place October 19-22, 2021. The newly presented preclinical data further validate previous research in methylmalonic acidemia (MMA) and highlight selective advantage, a key feature of the GeneRide technology, in two additional indications characterized by intrinsic liver damage, hereditary tyrosinemia type 1 (HT1) and Wilson disease. Selective advantage enables edited hepatocytes carrying the corrective gene to survive and reproduce better than the endogenous mutated hepatocytes and to ultimately repopulate a part or whole of the diseased liver.

The data presented at ESGCT highlighted mouse models of the three liver indications treated with GeneRide vectors to deliver corrective genes. In all these models, expansion of the corrected healthy hepatocytes correlated with improved diseased markers.

In the HT1 models with acute liver damage, the data showed that GeneRide-corrected hepatocytes repopulated the entire liver within four weeks post-administration, replacing the diseased hepatocytes with corrected hepatocytes. HT1 mice are deficient in the gene encoding fumarylacetoacetate hydrolase (FAH), which is required to metabolize the amino acid tyrosine, resulting in the accumulation of toxic metabolites. HT1 mice that received the GeneRide-FAH vector were no longer reliant on the current standard of care for the disease, and demonstrated restored normal body growth, liver function, and undetectable succinyl acetone levels, one of the toxic metabolites that accumulates in patients with HT1. Compared to the current standard of care, treatment with the GeneRide vector resulted in superior succinyl acetone reduction and lower alfa-fetoprotein levels, a clinically validated biomarker for hepatocellular carcinoma and another risk factor for untreated HT1 patients.

Wilson disease results from a defect in copper transport, leading to toxic accumulation of copper and damage to tissues. In a Wilson disease mouse model, GeneRide-corrected hepatocytes repopulated the liver over time, and treated mice showed improvements in liver function, hepatomegaly, and urinary copper excretion.

"We are very excited to present these preclinical data in HT1 and Wilson disease. These data demonstrated repopulation of a diseased liver using our *in vivo* genome editing technology, resulting in GeneRide-edited corrected hepatocytes. The results in HT1 were particularly encouraging, demonstrating complete liver repopulation after treatment. These data further validate our technology and represent an important step as we continue on our mission to deliver the hope of genetic medicine to people impacted by devastating diseases," said Mariana Nacht, Ph.D., chief scientific officer of LogicBio.

Shengwen Zhang, director, molecular and cellular pharmacology at LogicBio, will give an oral presentation highlighting GeneRide's successful delivery of corrective genes in HT1, Wilson disease and MMA. Selective advantage and expansion of corrected hepatocytes was observed in these preclinical models, demonstrated by detection of increasing levels of a tagged albumin protein, albumin-2A, a technology-related biomarker indicating site-specific gene insertion and protein expression, as well as immunohistochemistry for the corrective protein in liver sections. Results also showed increasing levels of albumin-2A correlated with increased expression of the corrective gene and improved disease burden. The company believes that these data support the development of GeneRide vectors to durably treat multiple genetic diseases with liver dysfunction.

Additional posters presented at ESGCT highlight the Company's adeno-associated virus (AAV) technology platform advancements. One poster detailed the combination of LogicBio's proprietary plasmids and optimized transfection process in suspension HEK293 cells, which resulted in a 10- to 25-fold increase in titers using an LK03 capsid in 50L bioreactors. A separate poster highlighted recent development of anion exchange (AEX)-based high-pressure liquid chromatography, allowing LogicBio to use an analytical method to measure the percentage of full capsids in any given sample of AAV-LK03.

Additional information on the meeting can be found on the ESGCT website.

The oral presentation and posters will be made available on the Presentations section of the Company website at https://investor.logicbio.com/events-and-presentations/presentations.

About LogicBio Therapeutics

LogicBio Therapeutics is a clinical-stage genetic medicine company pioneering genome editing and gene delivery platforms to address rare and serious diseases from infancy through adulthood. The company's genome editing platform, GeneRide™, is a new approach to precise gene insertion harnessing a cell's natural DNA repair process potentially leading to durable therapeutic protein expression levels. The company's gene delivery platform, sAAVy™, is an adeno-associated virus (AAV) capsid engineering platform designed to optimize gene delivery for treatments in a broad range of indications and tissues. The company is based in Lexington, MA. For more information, visit www.logicbio.com, which does not form a part of this release.

Forward-Looking Statements

Statements in this press release regarding LogicBio's strategy, plans, prospects, expectations, beliefs, intentions and goals are forward-looking

statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995, as amended, including but not limited to statements regarding validation of previous research; the potential of the GeneRide™ platform; and the company's belief that preclinical data supports the development of GeneRide vectors to durably treat multiple genetic diseases with liver dysfunction. The terms "believe," "validate" and similar references are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Each forward-looking statement is subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied in such statement, including the risk that existing preclinical data may not be predictive of the results of ongoing or later preclinical and/or clinical results; the potential direct or indirect impact of the COVID-19 pandemic on our business, operations, and the markets and communities in which we and our partners, collaborators and vendors operate; manufacturing risks; risks associated with management and key personnel changes and transitional periods; the actual funding required to develop and commercialize product candidates, including for safety, tolerability, enrollment, manufacturing or economic reasons; the timing and content of decisions made by regulatory authorities; the actual time it takes to initiate and complete preclinical and clinical studies; the competitive landscape; changes in the economic and financial conditions of LogicBio; and LogicBio's ability to obtain, maintain and enforce patent and other intellectual property protection for LB-001 and any other product candidates. Other risks and uncertainties include those identified under the heading "Risk Factors" in LogicBio's Annual Report on Form 10-K for the year ended December 31, 2020 and other filings that LogicBio may make with the U.S. Securities and Exchange Commission in the future. These forward-looking statements (except as otherwise noted) speak only as of the date of this press release, and LogicBio does not undertake, and specifically disclaims, any obligation to update any forward-looking statements contained in this press release.

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