Synlogic Announces Publication of Preclinical and Clinical Data for SYNB1353 as a Potential Treatment for Classical Homocystinuria

February 2, 2024

Findings support positive proof of mechanism, through successful degradation of methionine, precursor to homocysteine, using dietary disease model in preclinical models and healthy volunteer study

SYNB1353 was well-tolerated, with similar proportions in both the placebo and active arms reporting mild-moderate gastrointestinal adverse events

CAMBRIDGE, Mass., Feb. 02, 2024 (GLOBE NEWSWIRE) -- Synlogic, Inc. (Nasdaq: SYBX), a biopharmaceutical company advancing novel therapeutics to transform the care of serious diseases, announced today the publication of a manuscript detailing the development and activity of SYNB1353 in preclinical models and demonstrating safety, tolerability, and clinical proof of mechanism in healthy volunteers through the successful lowering of methionine (Met), a precursor to homocysteine, in a dietary model of classical homocystinuria (HCU).

Among findings outlined in the manuscript, SYNB1353 efficiently degraded both dietary and entero-recirculating methionine to prevent its absorption and subsequent conversion to homocysteine in preclinical models, suggesting that SYNB1353 should result in lowering of plasma homocysteine levels in HCU patients. In addition, in results from the clinical study in healthy volunteers, SYNB1353 was generally well-tolerated and adverse events were mild to moderate, transient, and predominantly gastrointestinal in nature. The proportion of subjects reporting gastrointestinal events were similar for the SYNB1353 and placebo cohorts (36.4% and 37.5%, respectively).

“Given the significant disease burden and acute need for new treatment options for those affected by classical HCU, we are pleased to share these findings that highlight the potential of our novel approach, which targets methionine, an amino acid that has long been validated as a therapeutic target in classical HCU through the use of dietary restrictions,” said Mylène Perreault, Ph.D., Head of Research at Synlogic. “Importantly, the SYNB1353 program has built on learnings and progress from our other rare metabolic disease programs, including the design of the potential therapeutic, the preclinical research and the advancement in clinical development.”

The publication, entitled “The Live Biotherapeutic SYNB1353 Decreases Plasma Methionine via Directed Degradation in Animal Models and Healthy Volunteers,” and published in the peer-reviewed journal, *Cell Host & Microbe*, is now available online at https://www.sciencedirect.com/science/article/pii/S193131282400009X.

About Classical Homocystinuria (HCU) & SYNB1353

Classical homocystinuria (HCU) is a rare metabolic disease characterized by extreme levels of homocysteine caused by an inherited deficiency in the cystathionine beta-synthase (CBS) enzyme. When CBS is absent, homocysteine builds up, putting patients at risk of multisystem complications, including potentially life-threatening, acute thromboembolic events, optical damage from lens dislocation, skeletal deficiencies, and neurocognitive impairments. Methionine (Met), an essential amino acid in dietary protein, is a precursor to homocysteine, and a restrictive, low-Met diet is a standard treatment for lowering total homocysteine (tHcy). SYNB1353 is a novel, orally administered, non-systemically absorbed drug candidate designed to consume Met in the gastrointestinal tract, thereby lowering homocysteine levels in patients with HCU. It is the first drug candidate developed through a research collaboration between Synlogic and Ginkgo Bioworks and the first investigational medicine developed on Ginkgo's platform to enter the clinic. The U.S. Food and Drug Administration (FDA) has granted Rare Pediatric Disease Designation, Fast Track designation and Orphan Drug Designation (ODD) to SYNB1353 for the potential treatment of HCU. Synlogic holds worldwide development and commercialization rights to SYNB1353.

About Synlogic

Synlogic is a biopharmaceutical company advancing novel therapeutics to transform the care of serious diseases in need of new treatment options. The Company focuses on rare metabolic diseases, with its lead program, labafenogene marselecobac (SYNB1934), currently being studied in Synpheny-3, a global, pivotal Phase 3 study for patients with phenylketonuria (PKU), and SYNB1353, a potential treatment for classical homocystinuria (HCU). Both PKU and HCU are caused by inborn errors of metabolism, and present significant need for innovation due to limitations of today’s medical treatment options.

Synlogic’s early-stage pipeline includes research and development on product candidates addressing medical needs in enteric hyperoxaluria, gout, cystinuria, as well as inflammatory bowel disease (IBD). The Company’s productivity is fueled by a reproducible, proprietary approach that creates new enzymatic pathways designed to consume or produce specific biological targets provided in GI-restricted, orally administered biopharmaceuticals. Synlogic designs, develops and manufactures these drug candidates, which are produced by applying precision genetic engineering to well-characterized probiotics. For more information, please visit www.synlogictx.com or follow us on Twitter, LinkedIn, Facebook, Instagram, and YouTube.

Forward Looking Statements

This press release contains "forward-looking statements" that involve substantial risks and uncertainties for purposes of the safe harbor provided by the Private Securities Litigation Reform Act of 1995. All statements, other than statements of historical facts, included in this press release regarding strategy, future operations, clinical development plans, future financial position, future revenue, projected expenses, prospects, plans and objectives of management are forward-looking statements. In addition, when or if used in this press release, the words "may," "could," "should," "anticipate," "believe," "look forward, " "estimate," "expect," “focused on,” "intend," "on track, " "plan," "predict" and similar expressions and their variants, as they relate to Synlogic, may identify forward-looking statements. Examples of forward-looking statements, include, but are not limited to, statements

regarding the potential of Synlogic's approach to Synthetic Biotics to develop therapeutics to address a wide range of diseases including: inborn errors of metabolism and inflammatory and immune disorders; our expectations about sufficiency of our existing cash balance; the future clinical development of Synthetic Biotics; the approach Synlogic is taking to discover and develop novel therapeutics using synthetic biology; and the expected timing of Synlogic's clinical trials of labafenogene marselecobac (previously known as SYNB1934), SYNB1353, SYNB8802 and SYNB2081 and availability of clinical trial data. Actual results could differ materially from those contained in any forward-looking statements as a result of various factors, including: the uncertainties inherent in the clinical and preclinical development process; the ability of Synlogic to protect its intellectual property rights; and legislative, regulatory, political and economic developments, as well as those risks identified under the heading "Risk Factors" in Synlogic's filings with the U.S. Securities and Exchange Commission. The forward-looking statements contained in this press release reflect Synlogic's current views with respect to future events. Synlogic anticipates that subsequent events and developments will cause its views to change. However, while Synlogic may elect to update these forward-looking statements in the future, Synlogic specifically disclaims any obligation to do so. These forward-looking statements should not be relied upon as representing Synlogic's view as of any date subsequent to the date hereof.

Media Contact: media@synlogictx.com

Investor Relations: investor@synlogictx.com

synlogic

Source: Synlogic, Inc.