Synlogic Presents Data at the 2018 Liver Meeting, the Annual Meeting of the American Association for the Study of Liver Disease (AASLD)

November 12, 2018

- Data support ongoing evaluation of Synthetic Biotic™ SYNB1020 for the potential treatment of hyperammonemia -

CAMBRIDGE, Mass.--(BUSINESS WIRE)--Nov. 12, 2018-- Synlogic, Inc. (Nasdaq: SYBX), a clinical-stage drug discovery and development company applying synthetic biology to beneficial microbes to develop novel living medicines, today announced the presentation of data from a cross-sectional study on ammonia levels in patients with cirrhosis and healthy volunteers, and preclinical studies of its Synthetic Biotic strains in rodent models of liver failure. The presentations were made at The Liver Meeting, the annual meeting of the American Association for the Study of Liver Disease (AASLD), which is being held in San Francisco, November 9 to 13, 2018.

“Hepatic Encephalopathy is a major cause of morbidity and mortality in patients with chronic liver disease. Elevated blood ammonia is an important risk factor for HE, however, it is difficult to measure in the setting of multicenter clinical trials,” said Aoife Brennan, M.B., Ch. B., Synlogic’s president and chief executive officer “The confirmatory preclinical data presented at this meeting support the ongoing development of SYNB1020. In addition, the data provided by our cross-sectional study have enabled us to maximize the quality of ammonia measurement in our ongoing Phase 1b /2a clinical trial of SYNB1020.”

Two presentations were given at the Liver Meeting, both were selected as posters of distinction. The data are summarized below:

- ***Blood Ammonia Levels are Labile and Responsive to Protein Intake in Patients with Compensated Cirrhosis Without Overt Hepatic Encephalopathy***

  Synlogic conducted a study in patients with cirrhosis who have not had an episode of overt hepatic encephalopathy (HE) to determine the level and inter-individual variability of fasting blood ammonia and the impact of a standard protein meal on blood ammonia levels. In addition, blood ammonia reference ranges of healthy volunteers at five clinical sites were compared as well as the intra-sample variability between fresh samples or fresh and frozen samples.

  The data demonstrated that:

- Sample handling and processing have a major impact on ammonia levels and are critical for data quality
- Venous ammonia is elevated in a subset of patients with cirrhosis without a history of overt HE and increases significantly after a meal containing 20g of protein for at least two hours
- Normal ranges determined using healthy volunteers and strict sample processing and analysis procedures can differ significantly from the normal range provided by the kit manufacturer
- There is an excellent correlation between paired fresh samples, however, freezing affects ammonia levels
- Age and gender do not appear to influence ammonia levels, however, as expected, higher MELD score is associated with higher baseline ammonia

The study provided key foundational data for the establishment of optimal protocols for blood ammonia measurement in Synlogic’s ongoing Phase 1b/2a clinical trial of its ammonia consuming Synthetic Biotic strain, SYNB1020, in patients with cirrhosis and elevated ammonia.

- ***Genetically Engineered E.coli Nissle Attenuates Hyperammonemia in Two Experimental Models of Hepatic Encephalopathy***

  The study was designed to explore the effect of Synthetic Biotic strains engineered to consume ammonia on plasma ammonia levels and bio-markers of liver damage in two rodent models of liver damage, the mouse thioacetamide (TAA) model and the rat bile duct ligation (BDL) model. The rat BDL model studies were conducted in the laboratory of Synlogic’s collaborator, Christopher Rose, Ph.D., Professor at the Department of Medicine at the Université de Montréal and a researcher at the Centre de recherche du Centre hospitalier de Université de Montréal (CRCHUM) where he heads the Hepato-Neuro Laboratory.

  The study evaluated two engineered strains of E.coli Nissle: SYNARG, designed to consume ammonia and convert it to arginine, and SYNARG+BUT which was engineered to also synthesize the short chain fatty acid butyrate in the

gastrointestinal (GI) tract. Butyrate has been reported to reduce inflammation and help maintain gut barrier integrity.

The data demonstrated that:

- *In vitro* SYNARG and SYNARG+BUT both consume ammonia and produce arginine and SYNARG+BUT also produces butyrate
- Statistically significant reductions in serum ammonia were observed in both the mouse TAA and rat BDL models
- Markers of liver injury were reduced in TAA mice, suggesting additional potential benefits of the engineered strains in liver disease beyond the direct consumption of ammonia in the GI tract

Future studies will also explore the effect of Synthetic Biotic medicines on measures of cognitive function in the rat BDL model. Elevated levels of ammonia in the brain lead to neurological symptoms, including impaired memory, shortened attention span, seizures, lack of muscle coordination and coma. The study provided supportive evidence for the potential beneficial effect of Synthetic Biotic medicines designed to consume ammonia from the GI tract in attenuating chronic liver disease.

About Synlogic
Synlogic is pioneering the development of a novel class of living medicines, Synthetic Biotic medicines, based on its proprietary drug development platform. Synlogic leverages the tools and principles of synthetic biology to genetically engineer beneficial microbes to perform or deliver critical functions missing or damaged due to disease. Synthetic Biotic medicines are designed to act locally and have a systemic effect to address disease in patients. Synlogic's two lead programs, SYNB1020 and SYNB1618, are orally administered and target hyperammonemia as a result of liver damage or genetic disease, and phenylketonuria, respectively. Synlogic is also developing SYNB1891 as an intratumorally administered Synthetic Biotic medicine for the treatment of cancer. In addition, the company is leveraging the broad potential of its platform to create additional Synthetic Biotic medicines for the treatment of liver disease, as well as inflammatory and immune disorders including Synlogic's collaboration with AbbVie to develop Synthetic Biotic-based treatments for inflammatory bowel disease (IBD). For more information, please visit www.synlogictx.com.

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, 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," "estimate," "expect," "intend," "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 platform to develop therapeutics to address a wide range of diseases including: cancer, inborn errors of metabolism, liver disease, and inflammatory and immune disorders; the future clinical development of Synthetic Biotic medicines; the approach Synlogic is taking to discover and develop novel therapeutics using synthetic biology; the potential of Synlogic's technology to treat cancer, hyperammonemia, and phenylketonuria. Actual results could differ materially from those contained in any forward-looking statement as a result of various factors, including: the uncertainties inherent in the 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 SEC. 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.

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