A New Strategy to Treat Disease

Founded in 2014 by MIT professors Jim Collins and Tim Lu, Synlogic combines synthetic biology, a form of precision biological engineering, with principles of traditional drug development to design medicines for diseases that are in need of new approaches. The result is a robust engine that can create these potential medicines, called Synthetic Biotics, to improve patients’ lives. Synthetic Biotics are living probiotics that have been genetically engineered to perform specific functions in the GI tract targeting validated biology. They have the potential to treat a range of conditions including rare diseases, metabolic conditions, immunological and inflammatory diseases. Because Synthetic Biotics are orally administered and are based on familiar probiotics as their delivery method, or chassis, they offer a potentially convenient and safe approach to treatment.

**Synthetic Biotics**
- Programmable, precision genetic engineering
- Well-characterized probiotic chassis
- Convert disease-causing targets to harmless metabolites

**Drug Candidates with Differentiated Clinical Profiles**
- **Validated** mechanism to target metabolites and immunological diseases
- **Safe** probiotic chassis, with >100 years of human experience
- **Convenient** oral delivery
- **Reversible** via rapid GI clearance, avoiding systemic absorption
- Potential to address both rare and common diseases

Progress in Drug Development

Synlogic’s pipeline includes a lead program in phenylketonuria (PKU). The company is also advancing additional novel drug candidates designed to treat homocystinuria (HCU), enteric hyperoxaluria, and gout. Synlogic also has research collaborations established with Roche and Ginkgo Bioworks.
Targeting Significant Areas of Unmet Need

**Rare Metabolic Diseases**

- **Phenylketonuria (PKU)** is a rare metabolic disease that is diagnosed at birth and caused by an inherited inability to break down the amino acid phenylalanine (Phe).

- **Homocystinuria (HCU)** is a rare metabolic disease in which patients cannot metabolize the amino acid homocysteine, leading to its excessive accumulation with risks including thromboembolism, skeletal abnormalities, and intellectual disability.

- **Enteric Hyperoxaluria**
  - **Enteric hyperoxaluria** is a disease characterized by high levels of urinary oxalate leading to chronic, recurrent kidney stones and renal damage, including chronic kidney disease (CKD) and end-stage renal disease (ESRD).

- **Gout**
  - **Gout** is a complex form of inflammatory arthritis that occurs when extra uric acid in the body forms crystals in the joints. It includes symptoms such as intense joint pain, inflammation and redness, and limited range of motion in the affected joints.

- **Immunologic & Inflammatory Disease**
  - Synlogic is also advancing research to assess the ability of novel Synthetic Biotics to treat inflammatory bowel disease.

Our Commitment

Synlogic is deeply committed to patients who are burdened by living with unmet medical needs, every day. The company understands the need for new treatment options and is tirelessly working on behalf of the rare disease community.