



Twist Bioscience Publishes Preclinical Data in Diabetes Validating GLP-1R Antagonist Antibody as Potential Treatment for Congenital Hyperinsulinism

June 26, 2023

-- TB-222-023 Discovered and Optimized Using Twist's Synthetic DNA Libraries and Antibody Engineering Services --

SOUTH SAN FRANCISCO, Calif.--(BUSINESS WIRE)--Jun. 26, 2023-- [Twist Bioscience Corporation](#) (NASDAQ: TWST), a company enabling customers to succeed through its offering of high-quality synthetic DNA using its silicon platform, today announced publication of preclinical data supporting the potential use of the highly potent and optimized GLP-1R antagonist antibody, TB-222-023, as a treatment for congenital hyperinsulinism (CHI). This pediatric genetic disorder has estimates of prevalence ranging from 1 in 25,000 to 1 in 50,000 live births in the U.S., which could translate into a steady-state treatable population of up to 2,500 cases in the U.S. It is caused by excessive pancreatic beta cell insulin secretion, resulting in hypoglycemia that can cause brain damage or death without treatment.

The *Diabetes* publication entitled, "[Optimization of a glucagon-like peptide 1 receptor antagonist antibody for treatment of hyperinsulinism](#)", presents the results from several preclinical experiments using TB-222-023 as part of a research collaboration between Twist and the laboratory of Diva D. De León-Crutchlow, MD, Chief of the Division of Endocrinology and Diabetes and Director of the Congenital Hyperinsulinism Center at Children's Hospital of Philadelphia.

"Patients with congenital hyperinsulinism have few treatment options. The promising results from our studies described in the *Diabetes* paper demonstrate that targeting GLP-1R with an antibody antagonist, such as TB-222-023, could be an effective strategy for the treatment of this very serious condition," said De León-Crutchlow.

Twist researchers had previously identified a highly potent and specific GLP-1R antagonist antibody, TB-001-003, from synthetic antibody libraries designed to target G protein-coupled receptors. Subsequently, this lead was optimized further for greater activity against GLP-1R using the Twist Antibody Optimization (TAO) library platform. One antagonist, TB-222-023, was identified and shown to be more potent than exendin-(9-39), a clinical stage GLP-1R antagonist peptide. The results of the studies conducted at Children's Hospital of Philadelphia showed that TB-222-023 effectively decreased insulin secretion in primary isolated pancreatic islets from a mouse model of hyperinsulinism, *Sur1*^{-/-} mice, and in islets from an infant with hyperinsulinism. TB-222-023 also increased plasma glucose and decreased the insulin to glucose ratio in *Sur1*^{-/-} mice.

"GLP-1R is very high profile within the industry and targeting this receptor with potent therapeutic candidates has potential in several medical conditions in addition to CHI, such as post-bariatric hypoglycemia (PBH)," said Emily M. Leproust, Ph.D., CEO and co-founder of Twist Bioscience. "This paper describes the power of Twist's highly specific and potent antibody libraries as well as our ability to then optimize and improve on resulting candidates. The fact that TB-222-023 showed potency higher than a Phase 3 ready clinical candidate peptide is very promising. TB-222-023 has the potential to be a first-in-class antibody, a modality with advantages over peptides. We are now looking for partners to help take TB-222-023 and related antibodies forward in development."

About Twist Biopharma Solutions (The Biologics Discovery and Optimization Division of Twist Bioscience)

Twist Biopharma Solutions combines high-throughput DNA synthesis technology, deep expertise in antibody engineering and *in vivo*, *in vitro* and *in silico* discovery methods to provide end-to-end antibody discovery solutions across the preclinical continuum and tailored to our partner's specific needs. By leveraging our unique ability to manufacture DNA at scale, we can construct proprietary antibody libraries with discovery beginning with either *in vivo* or *in vitro* diversity. Our Library of Libraries gives our partners an integral and unbiased resource for antibody therapeutic discovery and optimization. This precise and rational approach to library fabrication combined with sophisticated bioinformatics and software expertise expedites antibody discovery by decreasing risk, increasing speed, and lowering the failure rate for antibody therapeutic development. Additionally, *in vivo* discovery approaches including single B cell screening and hybridoma discovery enable parallel paths where multiple technology methods can be leveraged to create a panel of highly diverse antibody leads. Our automated screening and panning processes enable us to identify high affinity leads that our partners can move forward into the clinic. We also offer supporting development capabilities, including IgG conversion, expression, purification, biophysical characterization, and functional characterization.

For more information visit: <https://www.twistbioscience.com/products/antibody-discovery/twist-bioscience-and-abveris>

About Twist Bioscience Corporation

Twist Bioscience is a leading and rapidly growing synthetic biology and genomics company that has developed a disruptive DNA synthesis platform to industrialize the engineering of biology. The core of the platform is a proprietary technology that pioneers a new method of manufacturing synthetic DNA by "writing" DNA on a silicon chip. Twist is leveraging its unique technology to manufacture a broad range of synthetic DNA-based products, including synthetic genes, tools for next-generation sequencing (NGS) preparation, and antibody libraries for drug discovery and development. Twist is also pursuing longer-term opportunities in digital data storage in DNA and biologics drug discovery. Twist makes products for use across many industries including healthcare, industrial chemicals, agriculture and academic research.

Follow us on [Twitter](#) | [Facebook](#) | [LinkedIn](#) | [YouTube](#)

Twist Bioscience Legal Notice Regarding Forward-Looking Statements

This press release contains forward-looking statements. All statements other than statements of historical facts contained herein are forward-looking statements reflecting the current beliefs and expectations of management made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, including, but not limited to statements regarding the potential use of TB-222-023 as a treatment for CHI and other medical conditions, such as PBH. Forward-looking statements involve known and unknown risks, uncertainties, and other important factors that may cause Twist Bioscience's actual results, performance, or achievements to be materially different from any future results, performance, or achievements expressed or implied by the forward-looking statements. Such risks and uncertainties include, among others, the ability to achieve the expected benefits of Twist Bioscience's workforce reduction, transition of production to the Factory of the Future and reduced investments in DNA data storage; the ability to attract new customers and retain and grow sales from existing customers; the ability of Twist to achieve sufficient revenue to achieve or maintain positive cash flow from operations or profitability in any given period; risks and uncertainties of rapidly changing technologies and extensive competition in synthetic biology that could make the products Twist Bioscience is developing obsolete or non-competitive; uncertainties of the retention of significant customers; the ability of Twist Bioscience to successfully integrate acquired companies and to achieve expected benefits from acquisitions; supply chain and other disruptions caused by the COVID-19 pandemic or otherwise; risks of third party claims alleging infringement of patents and proprietary rights or seeking to invalidate Twist Bioscience's patents or proprietary rights; and the risk that Twist Bioscience's proprietary rights may be insufficient to protect its technologies. For a description of the risks and uncertainties that could cause actual results to differ from those expressed in these forward-looking statements, as well as risks relating to Twist Bioscience's business in general, see Twist Bioscience's risk factors set forth in Twist Bioscience's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 8, 2023 and subsequent filings with the SEC. Any forward-looking statements contained in this press release speak only as of the date hereof, and Twist Bioscience specifically disclaims any obligation to update any forward-looking statement, whether as a result of new information, future events or otherwise.

View source version on [businesswire.com](https://www.businesswire.com/news/home/20230626894684/en/): <https://www.businesswire.com/news/home/20230626894684/en/>

For Twist Bioscience:

Angela Bitting
SVP, Corporate Affairs
925- 202-6211
abitting@twistbioscience.com

Source: Twist Bioscience Corporation