Twist Bioscience Functional GLP-1R Antibodies Identified From Its Proprietary Synthetic DNA GPCR Libraries Demonstrate Potent Blood Glucose Control

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-- Preclinical data published online in *mAbs* demonstrates power of antibody generation --

SOUTH SAN FRANCISCO, Calif.--(BUSINESS WIRE)--Mar. 22, 2021-- 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 positive preclinical data demonstrating that GLP-1R antibodies identified from its proprietary G-protein coupled receptor (GPCR) libraries showed potent blood glucose control. Glucagon-like peptide-1 receptor (GLP-1R) is a class B GPCR that acts as the receptor for the incretin GLP-1, a peptide released to regulate insulin levels in response to food intake. The data were published online in *mAbs* detailing the work of researchers at Twist Biopharma, the biologics division of Twist Bioscience.

"These data demonstrate the power of our antibody libraries. The panel of antibodies generated showed excellent results in these preclinical studies, with one antibody possessing a half-life needed to achieve once-weekly dosing in treating the Type-2 diabetes patients. GLP-1R agonists and antagonists are widely used to control blood glucose levels to treat multiple diseases, which suggests our potent antibodies could have multiple clinical indications," said Emily M. Leproust, Ph.D., CEO and co-founder of Twist Bioscience. "We continue to advance these antibody leads and in parallel, work with a wide variety of partners to discover and optimize their antibodies across modalities and disease areas."

As published in *mAbs*, researchers discovered a panel of 13 high-affinity GLP-1R-targeting antibodies by mining Twist Biopharma's proprietary GPCR-focused phage display library with 1×10^{10} diversity created using Twist's precision synthetic DNA writing technologies. In the resulting antibodies, the heavy chain complementarity-determining region 3 (HCDR3), which confers most of the binding activity and specificity, was found to include either a GLP-1 motif, a GLP-2 motif, or an unknown/unique sequence. Many of the GLP-1R antibodies discovered were GLP-1R antagonists, which have the ability to prevent hypoglycemia incidents in congenital hyperinsulinism and post-bariatric hyperinsulinism.

In addition, Twist Biopharma created an agonist antibody by fusing GLP-1 peptide to the light chain of a non-functional GLP-1R-specific antibody. The resulting peptide antibody fusion, TB59-2, had a comparable binding affinity to the free peptide to GLP-1R-expressing CHO cells, comparable function in the agonistic format of the cAMP activity assay and a 2-day half-life in preclinical model studies using 10 mg/kg dosing and based on the measurement of the full GLP-1 peptide presence in the blood samples. *In vivo* studies indicate that TB59-2 has potential to be used to treat type 2 diabetes with a once-weekly dose.

The GLP-1R antagonistic antibody, TB01-3, from the panel showed a comparable effect in raising blood glucose levels after an insulin challenge to Exendin (9-39) (1 mg/kg). In an insulin tolerance test with 6 hr pre-dosing, TB01-3 demonstrated a statistically significant improvement in blood glucose-raising function compared to the Exendin (9-39). TB01-3 exhibited a half-life of 1 week *in vivo* and is anticipated to show a much longer half-life in humans.

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.

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This press release contains forward-looking statements. All statements other than statements of historical facts contained herein, including Twist's ability to successfully advance the GLP-1R antibody leads and to discover and optimize antibodies across modalities and disease areas, the ability of the GLP1-1R antibodies to successfully prevent hypoglycemia incidents in congenital hyperinsulinism and post-bariatric hyperinsulinism, the ability for TB59-2 to treat type 2 diabetes with a once-weekly dose and the ability for TB01-3 to exhibit a half-life in humans much longer than 1 week, 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. Such 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 risks and uncertainties of the ability to attract new customers and retain and grow sales from existing customers; risks and uncertainties of rapidly changing technologies and extensive competition in synthetic biology could make the products Twist Bioscience is developing obsolete or non-competitive; uncertainties of the retention of a significant customer; 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 further 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 Form 10-Q filed with the Securities and Exchange Commission on February 9, 2021 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.

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