Twist Bioscience Launches FlexPrep™ Ultra-High Throughput Library Preparation Kit for Applications in Agrigenomics and Population Genomics

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Normalization by Ligation™ library preparation technology processes thousands of samples at low cost with enhanced multiplexing and novel streamlined workflow

Designed with a Twist-developed enzyme specifically to increase adoption of NGS workflows in high throughput applications

Collaboration with Gencove to offer access to software to perform genomic analysis, enabling an end-to-end sample to variant call workflow

SOUTH SAN FRANCISCO, Calif.--(BUSINESS WIRE)--Oct. 30, 2024-- 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 the launch of the FlexPrep ™ Ultra-High Throughput Library Preparation Kit, designed with a proprietary Twist-developed enzyme to enable throughput at a low cost, and accelerate the adoption of NGS by microarray users in population and agricultural genomics (agrigenomics).

This press release features multimedia. View the full release here: https://www.businesswire.com/news/home/20241030111770/en/

Advanced sequencing technologies continue to drive increased sample volumes across multiple applications. The desire to profile tens of thousands to millions of samples in parallel, beyond just single nucleotide polymorphisms (SNPs), requires a next-generation sequencing (NGS) solution that enables high throughput applications at a reasonable cost. The Twist FlexPrep UHT Library Prep kit improves upon standard enzymatic fragmentation library preparation methods with the introduction of a novel Normalization by Ligation ™(NBL) technology, which eliminates the need for time-consuming upfront sample quantitation, and enables sample pooling and multiplexing early in the workflow. This built-in normalization and multiplexing capability simplifies how researchers prepare samples with variable mass at scale, where efficiency in workflow and per-sample cost is critical for NGS implementation[1].

“At Twist, we continue to push the boundaries of what applications can be made possible with synthetic DNA and to develop products that open up new markets. Legacy methods of profiling very large numbers of samples for agrigenomics to genotype cows, pigs and other animals as well as for population genomics studies, have not kept pace with evolving NGS methods and are tied to a fixed set of markers. Innovative next-generation sequencing methods provide far superior data to microarray technology, with the Twist FlexPrep UHT Kit surpassing even the most advanced NGS methods to maximize throughput and minimize cost,” said Emily M. Leproust, Ph.D., CEO and co-founder of Twist Bioscience. “When conducting large scale experiments and running multiple samples in parallel, researchers must ensure that there is equivalent mass of each sample included, and this ‘normalization’ process takes time, energy and effort. Using a novel technology, the FlexPrep UHT Kit self-normalizes, eliminating a critical time-consuming step while at the same time enabling high throughput, streamlining workflows and enabling scalability and customization. In addition to the differentiating capabilities of the kit, we’re collaborating with Gencove to offer a complementary genomic analysis solution to our customers.”

With the Twist FlexPrep UHT kit, researchers can run up to 1,152 samples in a single 96-well plate sequencing run, which can save researchers time and costs. And compared to processing samples individually, FlexPrep reduces consumables used by a factor of 12 as well as reduces the number of pipette tips from over 17,000 used in a standard kit to under 4,000 with the FlexPrep UHT kit. Designed for automation and to enable scientists to confidently multiplex, the NBL technology simultaneously tags samples with a unique barcode to enable early pooling of up to 12 separate samples in one reaction, delivering 12x improvement on consumables and reagent efficiency[1]. Utilizing this tagging method together with Twist’s 3,000 unique dual indexes (UDIs) in the FlexPrep workflow, research sample sizes are not constrained by multiplexing capacity or throughput. The FlexPrep UHT kit can also be paired with Twist’s custom target enrichment panels for tunable and uniform coverage of genomic regions of interest.

“The normalization adapters enable us to skip costly quantification steps, and the sample barcodes reduce the number of PCR reactions, cleanups, and use of tips by 12-fold. Not only does FlexPrep increase our throughput, it saves us time and money,” commented Angela Jones, NGS operations manager at Vanderbilt University Medical Center.

Twist is also collaborating with Gencove, a leader in low-pass genome sequencing methods and analysis software, to offer analysis solutions to customers using FlexPrep UHT to understand their data and deliver fast, cost-effective and accurate genotyping results. Gencove works in a partnership model to design custom assays, optimize sequencing solutions, and build analysis pipelines to effectively bridge the gap from samples to solutions in the fields of agriculture and human health.

“Low-pass sequencing and imputation, or enhanced whole genome sequencing with target enrichment to dive deeper into regions of interest, are ideal workflows for anyone initiating a genotyping program for the first time or looking to replace outdated arrays with a cost-effective, flexible and information rich solution,” said Joe Pickrell, Co-founder and CEO, Gencove. “To meet the growing demand for large-scale genomic information, we’ve developed an end-to-end software solution that we’re pleased to offer as an additional tool for Twist’s customers using FlexPrep UHT and embracing NGS technology to expand their high throughput and genomic analysis capabilities beyond what is offered by microarrays.”

Twist FlexPrep ™Ultra-High Throughput (UHT) Library Preparation Kit

The Twist Flex Prep ™UHT Kit workflow is purpose-built to streamline and massively scale up Twist’s established enzymatic fragmentation methods. The Normalization by Ligation ™(NBL) technology eliminates the need to measure the mass of each DNA sample and to perform labor-intensive

concentration adjustment prior to library preparation, saving significant cost per sample. Following fragmentation and adapter ligation of each sample in a plate, up to 12 samples are pooled together in a single tube. This pooling strategy results in a meaningful reduction in both volumes and costs of reagents required for subsequent bead purification and amplification steps[1]. Libraries prepared from this kit can be leveraged to perform whole genome or targeted sequencing with the use of target enrichment panels. All plate and tube formats are optimized to ensure compatibility with key automation systems, a critical consideration for labs looking to streamline workflows and reduce hands-on time.

[1]As compared to Twist Library Preparation EF Kit 2.0.

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 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 statements with respect to the potential savings resulting from integrating Twist products into a workflow, the success of our collaboration with Gencove and ability of the complementary genomic analysis solution to meet our customers’ needs. 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 restructuring activities 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 Bioscience to achieve sufficient revenue to achieve or maintain positive cash flow from operations or profitability, which will depend heavily on the success of its existing products and the development and commercialization of additional products in the synthetic biology, biologic drug and data storage industries; 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 about 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; 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 Annual Report on Form 10-K filed with the SEC on November 21, 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.

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