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Twist Bioscience launches FlexPrepâ?¢ Ultra-High Throughput (UHT) Library Preparation Kit for applications in Agrigenomics

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Twist Bioscience Corporation, the providers of high-quality synthetic DNA using its silicon platform, announced the launch of the FlexPrepâ?¢ 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).

The Twist FlexPrep UHT Library Prep kit improves upon standard enzymatic fragmentation library preparation methods with the introduction of a novel Normalization by Ligationâ?¢Â (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].

â??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,â? said Emily M. Leproust, Ph.D., CEO and co-founder of Twist Bioscience.

â??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 â??normalizationâ?? 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, weâ??re collaborating with Gencove to offer a complementary genomic analysis solution to our customers.â?•

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. Utilizing this tagging method together with Twistâ??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 Twistâ??s custom target enrichment panels for tunable and uniform coverage of genomic regions of interest.

Twist is also collaborating withÂ 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.

Joe Pickrell, Co-founder and CEO, Gencove sai â??To meet the growing demand for large-scale genomic information, weâ??ve developed an end-to-end software solution that weâ??re pleased to offer as an additional tool for Twistâ??s customers using FlexPrep UHT and embracing NGS technology to expand their high throughput and genomic analysis capabilities beyond what is offered by microarrays.â?•

The Twist Flex Prepâ?¢Â UHT KitÂ workflow is purpose-built to streamline and massively scale up Twistâ??s established enzymatic fragmentation methods. The Normalization by Ligationâ?¢Â (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. 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