Twist 96-Plex Library Preparation Kit

High throughput library prep for low-pass sequencing or plasmid QC

KEY BENEFITS

High throughput
- Up to 960 samples per kit
- One tube for up to 96 samples

Maximum efficiency
- Cost effective with as little as $10 per sample
- Eliminates fragmentation, repair, and A-tailing steps

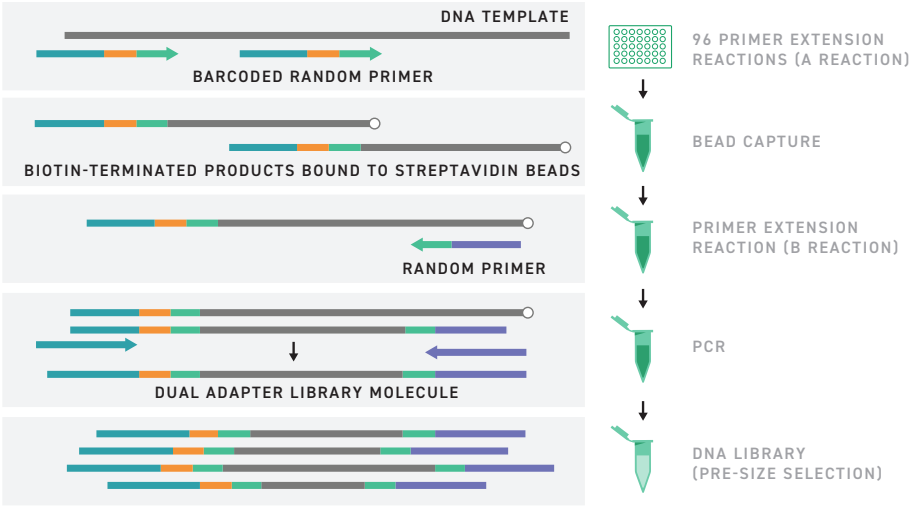
Adaptable for a variety of organisms
- Enables optimization for high- or low-GC content samples

Library preparation is often the most operationally and economically challenging aspect of a lab's NGS workflow. Efficient sequencing tools are critical when NGS testing is being done at large scale or for broad genome mapping. Many sequencing library prep methods currently in use are not optimized for high throughput environments, and present a significant bottleneck in processing samples for analysis.

The Twist 96-Plex Library Preparation kit enables high-throughput library construction for whole genome sequencing. Most steps in the workflow are performed in a single tube, ensuring efficient use of reagents and streamlining handling. Each run can be tuned to the GC profile of the input sample, making it an equally suitable tool for low-pass sequencing of crops or QC testing of plasmids in drug design studies. The final libraries are compatible with Illumina sequencers and barcoded for demultiplexing.

Chemistry

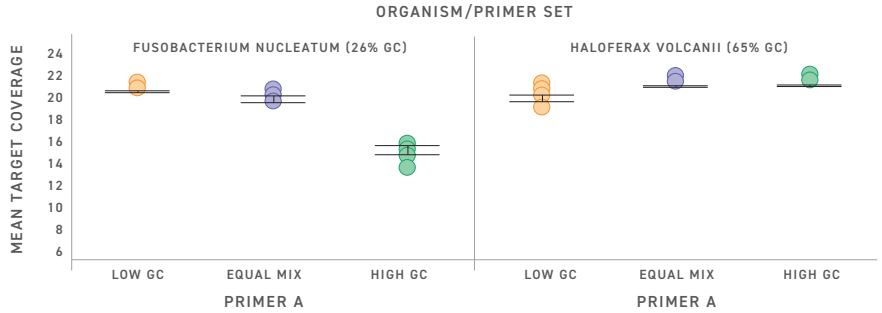
1. Denatured DNA templates in a 96-well plate are randomly primed with 5' barcoded adapters. Polymerase extends the primer to make a copy of the DNA template, then terminates with a biotinylated ddNTP.
2. All samples are pooled into a single tube, captured on streptavidin coated magnetic beads, and washed to remove excess reactants.
3. A second 5' adapter tailed primer with a strand-displacing polymerase converts the captured templates into dual adapter libraries. The primer bound closest to the magnetic bead extends and displaces primers bound downstream of the bead.
4. The beads are washed to remove excess reactants, preserving the dual adapter library. Low cycle PCR simultaneously amplifies the library and incorporates the optional plate barcode in the index read position.



Customize for your Organism's Profile

Each Twist 96-Plex Library Preparation kit comes with two primer plates, one for high-GC content and one for low GC-content. Users can choose which plate to use, depending on the profile of the input sample, to generate the optimal library for most even coverage.

TWIST 96 PLEX LIBRARY PREP GC ORGANISIMS COMPARISON

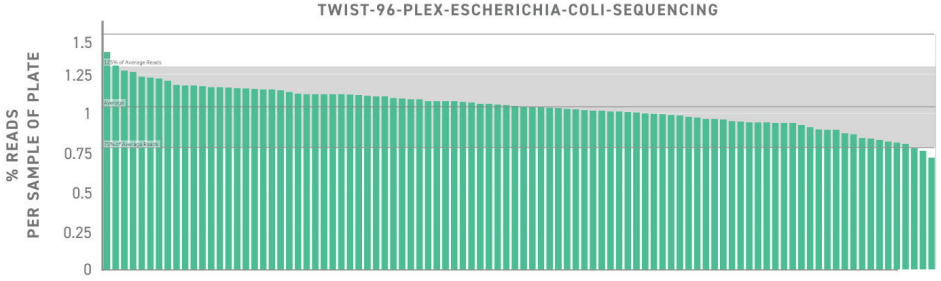


Two organism types representing high and low GC content were prepared with the Twist 96-Plex Library Preparation kit. Both organisms were prepared with high GC primers, low GC primers, and a 1:1 mix of both primer types. Data set shown is downsampled to analyze at 30X raw coverage. In both cases, target coverage was improved when the optimal primer set was used.

Consistent Libraries at Scale

Sequencing libraries prepared with the Twist 96-Plex Library Preparation kit display uniform read counts across each plate. Bead-based size selection evenly captures fragments within a specified range.

TWIST-96-PLEX-ESCHERICHIA-COLI-SEQUENCING

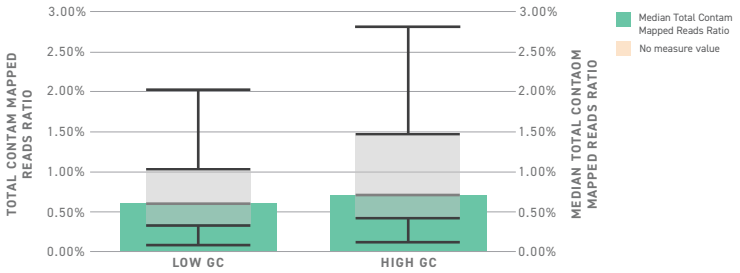


96 NGS libraries were generated from *E.coli* with the Twist 96-Plex Library Preparation kit. 50 ng of each replicate sample was prepared in a single workflow, then sequenced on a NextSeq 550 sequencer. Data was demultiplexed by the plate level barcode, then by the sample barcode and aligned against the reference genome to obtain aligned read counts per sample.

Minimized Contamination

The Twist 96-Plex Library Preparation kit allows pooling many samples together at once, without introducing harmful cross-contamination. Samples in each well are uniquely barcoded and display minimal well to well contamination when sequenced.

TWIST 96 PLEX LIBRARY PREP TOTAL CONTAMINATION RATIO



384 NGS libraries were generated using the Twist 96-Plex Library Preparation kit. The DNA input for these libraries was a unique set of 96 plasmids tested with high and low GC primer plates by two operators. Libraries were pooled together and sequenced on a NextSeq 550 sequencer. Contamination was evaluated as a ratio of contaminated / non-contaminated mapped reads per plasmid. The median contamination ratio across both operators for all plasmids was less than 1% for each GC primer plate

Twist 96-Plex Library Preparation kit is a component of the Twist Bioscience portfolio of products for NGS Library Preparation.

LEARN MORE

twistbioscience.com/ngs
sales@twistbioscience.com

ORDERING INFORMATION

106541: Twist 96-plex Library prep Kit, Set A, 5 x 96 samples

106542: Twist 96-plex Library prep Kit, Set B, 5 x 96 samples

106543: Twist 96-plex Library prep Kit, 10 x 96 samples