

NGS TARGET ENRICHMENT SOLUTIONS

Twist Custom Panels

Your Targets, Your Design, On Your Schedule

KEY BENEFITS

Uniform and Complete Target Coverage

- Optimized probe balancing promotes uniform capture
- NGS based QC ensures 100% probe representation, eliminating dropout

Unique Design Customization

- Proprietary design algorithm enables balanced capture even for challenging regions
- Scalable design from 100 to >1M probes per pool

Perfect your Custom Content Faster

- Fewer iterations to final design
- Faster turnaround time from pilot to production

Deriving meaningful results from a genomic assay depends heavily on the ability to customize. Target selection and probe design play a major role in ensuring a highly efficient assay. With the rapid pace at which research advances, the ability to add targets and adjust design to ensure complete coverage while maintaining capture uniformity to drive down the cost per sample is critical.

Sophisticated Design for Optimized Performance

Twist Bioscience's probes enable efficient capture of intended targets through the combined advantage of tightly controlled, balanced probe representation and a highly scalable synthesis platform that allows the targeting of tens to tens-of-thousands of targets. This technology is complemented by a rapid iteration pipeline that facilitates quick and efficient design optimization, ensuring that workflow biases are also adjusted. This, in turn, reduces the design turn-around from testing to production.

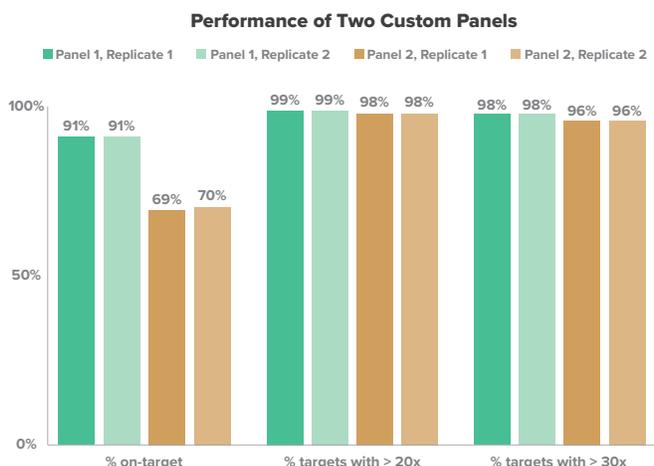


Figure 1. Replicate samples enriched with a panel designed to capture non-complex targets (Panel 1) and a panel designed to capture more challenging targets that include repetitive regions (Panel 2) show high on-target rate and deep coverage of targets at 150x sequencing. Panel 1 performance shows an extremely low intrinsic off-target rate (9%) whereas Panel 2 shows the combined advantage of optimized design and stringent workflow to deliver high specificity and deep target coverage.

Balancing specificity and uniformity is key in optimizing performance of custom panels. Sequence features such as GC content, as well as repetitive elements within the target regions are critical factors in this process. As most hybridization-based enrichment workflows are carried out at a single temperature, ensuring even capture across targets with overall sequence complexity is a typical challenge for most target enrichment solutions.

Twist Bioscience's custom design algorithm surveys the target regions for these sequence features and predictively adjusts for biases through its proprietary probe design, synthesis and amplification process. This results in exceptional and even coverage of targets, despite the presence of more challenging sequence features (Figure 1). Coupled with an efficient target enrichment workflow, high diversity libraries are obtained reproducibly, providing sensitive detection of variants even within highly complex samples enabling reduced sequencing requirements (Figure 2).

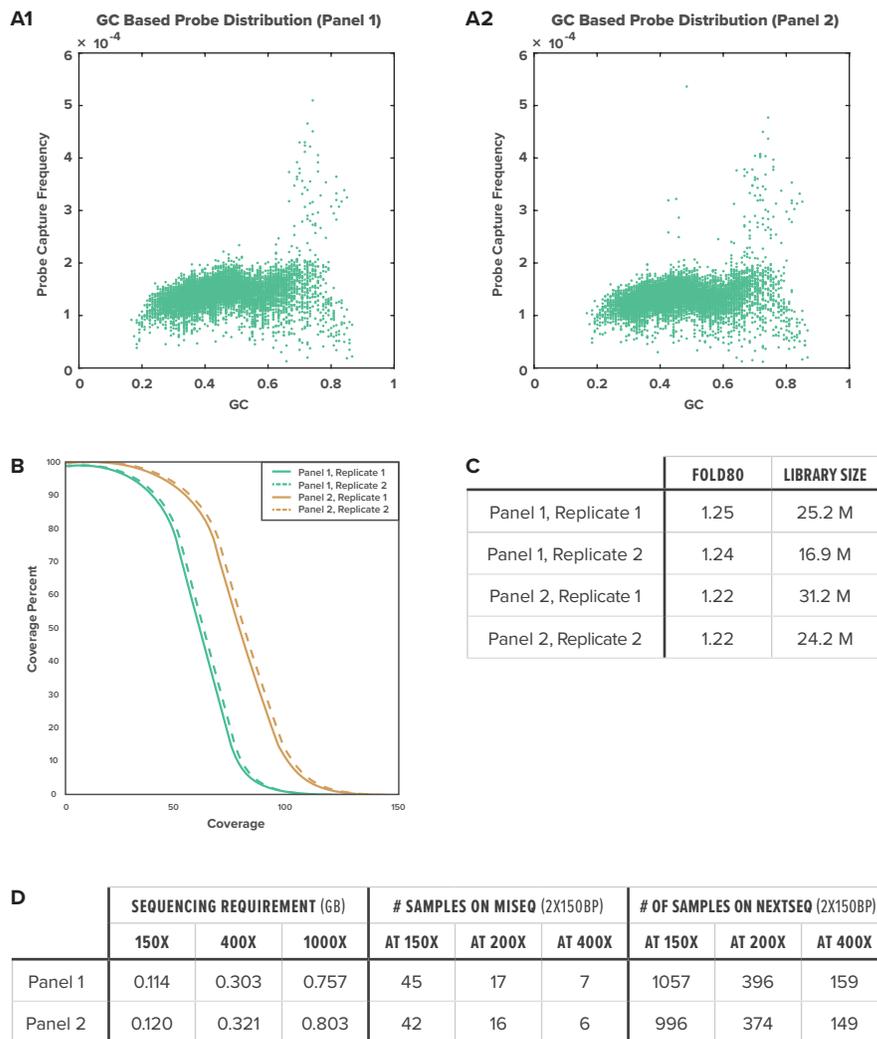


Figure 2. A. Tightly controlled probe synthesis and amplification ensures probe coverage across a wide range of GC. **B.** Steep slope of the cumulative histogram shows highly uniform read coverage across targets, with < 1% of targets and > 100x for minimal wasted reads. **C.** Exceptional uniformity and library diversity demonstrate the combined advantage of Twist's optimized design pipeline and highly efficient capture workflow. **D.** Reduced sequencing requirements enable maximized throughput, lowering effective cost per sample.

Rapid Customization, Optimized Designs On Your Schedule

Twist Bioscience is the leader in cost-effective oligonucleotide synthesis at scale. The process of creating and improving custom panels is fast and straightforward. After an initial design, Twist provides a small number of custom panel reactions for testing. This rapid qualifying process allows the researcher to advance at the speed of unhindered innovation. Results achieved during panel customization allow the researcher to decide between additional modifications or scale up for full production.

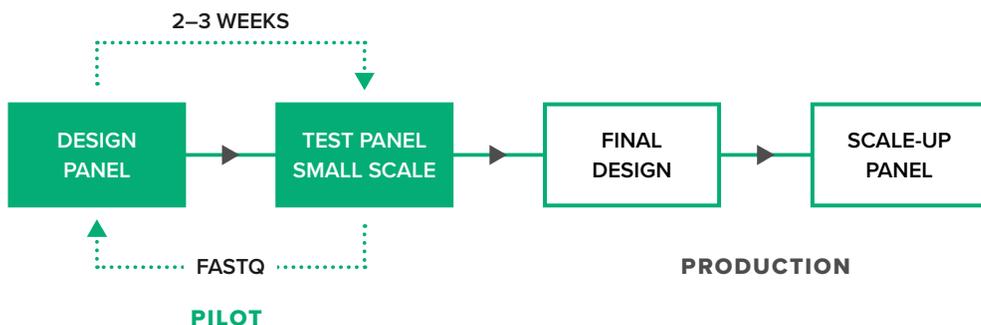


Figure 3. Optimized design pipeline enables a quick turnaround from targets to probes. Performance-based optimization loops enable faster optimization for a quicker path from pilot to production.