

QIAseq Targeted DNA Panels



Digital DNA sequencing to confidently detect low-frequency variants

- Digital sequencing enabled by molecular barcodes to remove PCR duplicates
- Complete Sample to Insight solution streamlines the workflow
- Compatibility with low-quality DNA enables efficient sequencing of FFPE and cfDNA samples
- Minimal DNA input to preserve precious samples
- Optimized buffers and conditions to achieve high coverage of GC-rich regions

The QIAseq targeted DNA Panels have been developed as a complete Sample to Insight solution to enable digital DNA sequencing by utilizing molecular barcodes. Digital DNA sequencing is a

unique approach to detect low-frequency variants with high confidence by overcoming the issues of PCR duplicates, false positives and library bias.

Each panel is a one-box, NGS platform-agnostic solution that contains all the necessary components to construct libraries from enriched genomic targets. Primer design is based on single primer extension, in which each genomic target is enriched by one target-specific primer and one universal primer – a strategy that removes conventional two target-specific primer design restriction and reduces the amount of required primers. All primers required for a panel are pooled into an individual primer pool to reduce panel handling and the number of pools required for enrichment and library construction. Platform-specific indexes, which are contained in a separate box, allow the multiplexing of up to 384 samples per sequencing run.

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Product Details

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QIAseq Targeted DNA Panel (12)

\$1,297.00

Kit containing ALL reagents (except indexes) for targeted DNA sequencing; fixed panel for 12 samples; less than 100 genes

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Cat No./ID: 333505

QIAseq Targeted DNA Panel (96)

\$7,559.00

Kit containing ALL reagents (except indexes) for targeted DNA sequencing; fixed panel for 96 samples; less than 100 genes

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QIAseq Targeted DNA HC Panel (12)

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Kit containing ALL reagents (except indexes) for targeted DNA sequencing; fixed panel for 12 samples; more than 100 genes

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QIAseq Targeted DNA HC Panel (96)

\$10,799.00

Kit containing ALL reagents (except indexes) for targeted DNA sequencing; fixed panel for 96 samples; more than 100 genes

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QIAseq Targeted DNA Booster Panel (96)

Cat No./ID: 333802

QIAseq Targeted DNA IO Panel (12)

\$4,021.00

Kit containing ALL reagents (except indexes) for targeted DNA sequencing; fixed panel for 12 samples; more than 100 genes

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QIAseq Targeted DNA IO Panel (96)

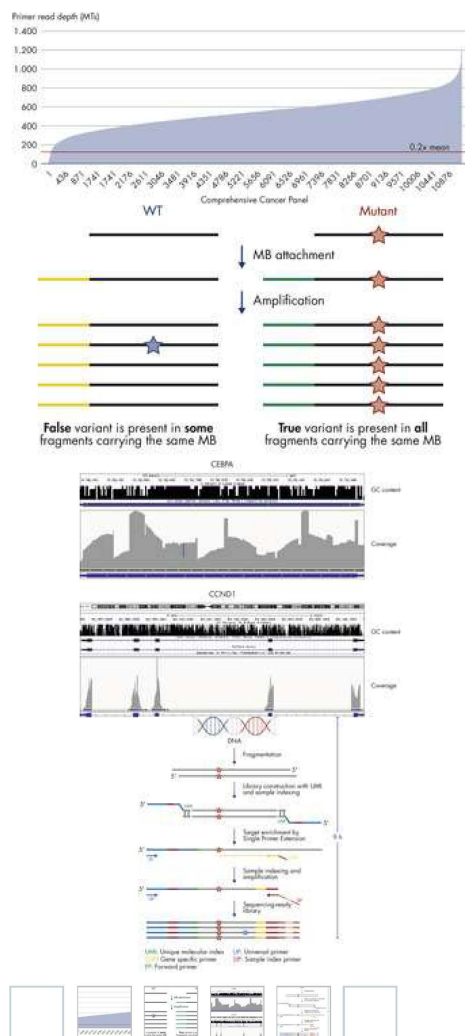
\$30,683.00

Kit containing ALL reagents (except indexes) for targeted DNA sequencing; fixed panel for 96 samples; more than 100 genes

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QIAseq Targeted DNA Panels are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

Product Details



Performance

Accuracy: Innovative digital sequencing (incorporating molecular barcodes) eliminates PCR duplication and amplification artifacts to detect low-frequency variants with high confidence (see figure Principle of molecular barcodes).

Specificity: The unique combination of our proprietary primer design algorithm and rigorous testing of every primer assay guarantees high specificity and accurate results.

Uniformity: The QIAseq Targeted DNA Panel workflow has been optimized to deliver highly uniform sequencing results, to ensure sequencing capacity is utilized very efficiently (see figure Uniformity).

Sensitivity: Digital DNA sequencing approach is optimized to deliver high confidence in calling low-frequency DNA variants. Over 90% sensitivity for 1% NA12878 SNP and indel on typical coding region with false positive less than 15 per mega base region when variants are detected with tiled primer design to cover complete coding region of each gene.

Universality: The chemistry used in the QIAseq targeted DNA panels and workflow is compatible with both regular and GC-rich genomic regions, allowing one to achieve 100% coverage of genes rich in GC content such as CEBPA and CCND1 (see figure: coverage of GC-rich genomic regions)

Flexibility: The QIAseq targeted DNA panels offer a high degree of flexibility in content and sample multiplexing. Several cataloged panels have been developed for a wide range of applications. One can also build a custom panel for a specific content, or extend the contents of an existing cataloged panel. Up to 384 samples can be multiplexed using the QIAseq indexes.

Principle

PCR duplicates are a major issue in targeted DNA sequencing, since, through PCR amplification, they turn unique DNA molecules into identical DNA molecules that cannot be distinguished from each other. In addition, errors from PCR amplification and sequencing process may also be present in final reads that lead to false positive variants in sequencing results. This, in turn, results in the inability to confidently call DNA variants present at low frequencies in the starting DNA material. To overcome the issue of PCR duplicates and amplification artifacts, the QIAseq Targeted DNA Panels use digital sequencing by incorporating molecular barcodes into the starting DNA material before any amplification takes place, thereby preserving the uniqueness of the starting DNA molecules and overcoming the issues of PCR duplicates, false positives and library bias.

Procedure

The entire workflow of the QIAseq targeted DNA panels to go from extracted DNA to sequencing-ready libraries can be completed in 9 hours (see figure Workflow). Extracted DNA is fragmented, genomic targets are molecularly barcoded and enriched, and libraries are constructed. Sequencing files can be fed into the QIAseq pipeline, a cloud-based data analysis pipeline, which will filter, map and align reads, as well as count unique molecular barcodes associated with targeted genomic regions, and call variants with a barcode-aware algorithm. This data can then be fed into IVA or QCI for interpretation.

Applications

The QIAseq targeted DNA panels can be used to call a variety of DNA variants from a wide range of sample types for numerous applications.

DNA variants:

- SNVs
- Small indels
- CNVs

Sample types:

- FFPE
- Plasma/serum
- Fresh or frozen tissue
- Cell lines

Applications:

- Profiling of DNA variants in solid and hematologic malignancies
- Hotspot detection in solid tumors
- Examination of variants in mitochondrial DNA
- Pain and ADME Pharmacogenomics
- Human identity and paternity testing
- Assessment of germline mutations for inherited diseases
- Profiling of all exonic bases in BRCA 1 and BRCA2

Product Resources

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Box containing combinatorial dual-indexed adapters, for indexing up to 12 samples for QIAseq Targeted Panel sequencing on Illumina platforms; enough to process a total of 48 samples

\$1,176.00

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Box containing oligos for indexing up to 12 samples for QIAseq Targeted Panel sequencing on Ion Torrent platforms; enough to process a total of 48 samples

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Collection Tubes (2 ml)

1000 Collection Tubes (2 ml)

\$161.00

Cat No./ID: 333777

QIAseq 96-Index I Set C (384)

Box containing combinatorial dual-indexed adapters, for indexing up to 96 samples for QIAseq Targeted Panel sequencing on Illumina platforms; enough to process a total of 384 samples; 3rd of 4 sets required for multiplexing 384 samples

\$5,183.00

GeneRead QIAact Actionable Insights Tumor Panel

Sets of 4 pools containing wet-bench verified primer sets for targeted enrichment of a pathway-focused panel of genes.

QIAseq 96-Index L (384)

Box containing oligos for indexing up to 96 samples for QIAseq Targeted Panel sequencing on Ion Torrent platforms; enough to process a total of 384 samples

\$5,183.00