

GeneRead DNaseq Gene Panel System

For PCR-enabled target enrichment for NGS

The GeneRead DNaseq Gene Panel System enables focused amplification of genes for next-generation sequencing (NGS) analysis. Using multiplex PCR-based target enrichment technology, and focusing on the most relevant genes in a range of diseases, GeneRead DNaseq Gene Panels provide the solution for targeted sequencing of the most important genes for your research.

The GeneRead DNaseq Gene Panel System provides:

- Enrichment to enable ultra-deep sequencing of disease-relevant genes
- Simple protocol, available to any lab with a PCR instrument
- Integrated controls, enabling quality control before sequencing
- Free sequence variant analysis

Focused sequencing for the most important genes

DNA resequencing is a useful tool to detect genetic variation including somatic mutations, SNPs, and small insertions and deletions. However, sequencing the genome can be time-consuming. Targeted enrichment technology enables NGS platform users to sequence specific regions of interest instead of the entire genome, thereby achieving more sensitive mutation detection. GeneRead DNaseq Gene Panels are designed to analyze a panel of genes related to a disease state and can be used with any major NGS platform. Targeted enrichment is particularly well suited for medium-throughput sequencers, including Life Technologies' Ion Torrent™ PGM Sequencer and Illumina's MiSeq® Personal Sequencer. Laboratory-verified primer sets are available for most popular genes, as well as custom panels with any set of genes in the human genome.

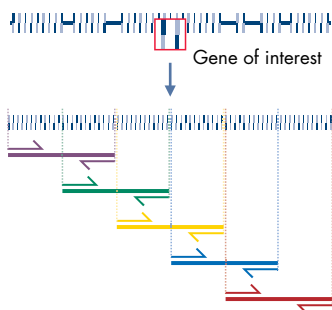


Figure 1. PCR-enabled targeted enrichment of genes of interest (GOI).

The principle of the GeneRead DNaseq System is to employ overlapping primer sets across the exonic portions of a gene or genes to maximize target coverage and minimize nonspecific amplification.

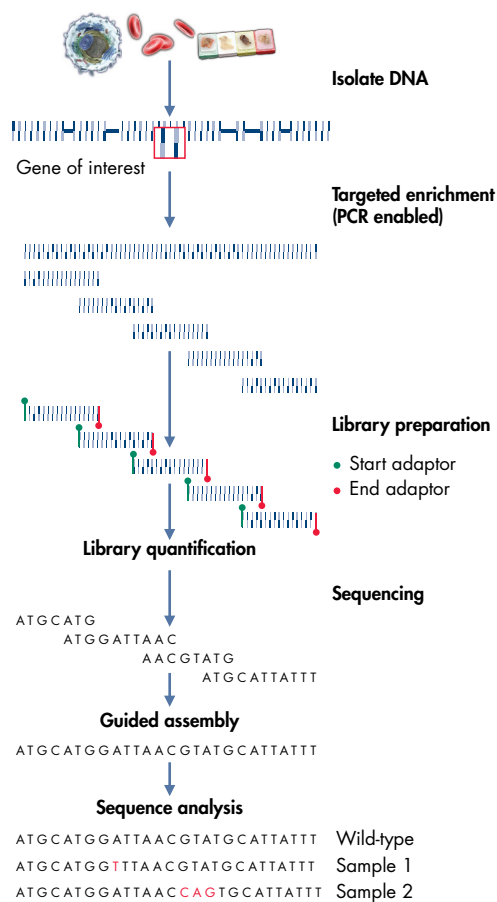


Figure 2. GeneRead DNaseq Gene Panel System targeted enrichment NGS workflow. First, extract DNA (the QIAamp® DNA Mini Kit or QIAamp DNA FFPE Tissue Kit is recommended), and then use GeneRead DNaseq Gene Panels for targeted exon enrichment. Then construct your NGS library, quantify and quality-control using the GeneRead Library Quantification System, and perform NGS and data analysis using the QIAGEN NGS Data Analysis Web Portal.



Table 1. Identification of low frequency variants in lung adenocarcinoma FFPE samples with GeneRead DNAseq Lung Cancer Panel

Sample	Gene	Codon change	Variant frequency (%)	AA change
Tumor sample 1	KRAS	c.35G>T	38	p.G12V
	BRAF	c.462A>C	15	p.K154N
	PDGFRA	c.1432T>C	54	p.S478P
	TP53	c.817C>T	24	p.R273C
Tumor sample 2	ERBB2	c.3590C>G	9	p.P1197R
	KRAS	c.35G>T	30	p.G12V
Tumor sample 3	EGFR	c.1496G>A	7	p.C499Y
	KRAS	c.35G>T	23	p.G12V
	PDGFRA	c.1432T>C	59	p.S478P
	TP53	c.817C>T	11	p.R273C

Available pathways

- Breast Cancer
- Colon Cancer
- Comprehensive Cancer Panel
- Gastric Cancer
- Leukemia
- Liver Cancer
- Lung Cancer
- Ovarian Cancer
- Prostate Cancer

Ordering Information

Product	Contents	Cat. no.
GeneRead DNAseq Gene Panels: Pathways	Sets of 4 tubes containing wet-bench verified primer sets for targeted exon enrichment of a pathway-focused panel of genes	180941
GeneRead DNAseq Gene Panels: High-Content	Sets of 8 tubes containing wet-bench verified primer sets for targeted exon enrichment of a pathway-focused panel of genes	180942
GeneRead Custom DNAseq Gene Panels	Tubes containing primer sets for targeted exon enrichment of a custom panel of genes	180946
GeneRead Mix-n-Match DNAseq Gene Panels	Tubes containing wet-bench verified primer sets for targeted exon enrichment of a customized panel of genes	180944
GeneRead Panel Mastermix	Mastermix for use with the GeneRead DNAseq Gene Panel System	Varies*
GeneRead Library Quant Kit	For library quantification	Varies*
GeneRead qPCR SYBR® Green Mastermix	Mastermix for use with GeneRead Library Quant Kits	Varies*

* Visit www.sabiosciences.com/NGS.php for more information on these products.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

Discover more, visit www.sabiosciences.com/NGS.php!

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