

CleanPlex® for MGI BRCA1 & BRCA2 Panel

Sensitive detection of somatic and germline mutations in *BRCA1* and *BRCA2*

Highlights

- Sensitive Detection**
 Detect somatic mutations as low as 1% variant allele frequency using just 20 ng of DNA
- Fast, Streamlined Workflow**
 Generate sequencing-ready libraries in just 3 hours using a rapid, three-step protocol
- Superb Performance**
 Prepare high-quality NGS libraries with excellent on-target performance using CleanPlex® Technology to enable efficient use of sequencing reads and reduce costs

The CleanPlex® for MGI BRCA1 & BRCA2 Panel is a multiplex PCR-based targeted resequencing assay designed to simplify the evaluation of somatic and germline variants across *BRCA1* and *BRCA2* genes. The panel targets all exonic regions and flanking intronic sequences of *BRCA1* and *BRCA2*. Starting with just 20 ng of DNA, sequencing-ready libraries can be prepared using a streamlined workflow in just 3 hours. The panel is optimized to deliver data with high on-target performance and high coverage uniformity to ensure efficient use of sequencing reads.

Sensitive Detection

The CleanPlex for MGI BRCA1 & BRCA2 Panel allows detection of somatic mutations down to 1% frequency using just 20 ng of input DNA (10 ng per primer pool). With an average amplicon size of 158 bp, the panel is also compatible with degraded samples such as DNA isolated from FFPE tissues.

CleanPlex Streamlined Workflow

The CleanPlex for MGI BRCA1 & BRCA 2 Panel offers a rapid and streamlined workflow. Starting from purified and quantitated DNA, the multiplex PCR-based protocol can be completed in just 3 hours, with 75 minutes of hands-on time, using a three-step workflow with minimal tube-to-tube transfers. Each step consists of a thermal cycling or incubation condition, followed by “with bead” purification using magnetic beads.



CleanPlex Target Enrichment and Library Preparation

3 hours of total assay time, 75 minutes of hands-on time

CleanPlex for MGI BRCA1 & BRCA2 Panel Specifications

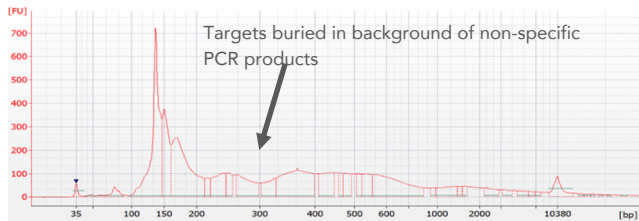
Parameter	Specification
Enrichment Method	Multiplex PCR
Sequencing Platforms	MGISEQ™
Number of Genes	2
Targets	Full exons of the <i>BRCA1</i> and <i>BRCA2</i> genes
Cumulative Target Size	20,275 bp
Variant Types	SNVs, indels ^A
Number of Amplicons	227
Amplicon Size	107 – 201 bp (157 bp on average)
Number of Primer Pools	2
Input DNA Requirement	10 – 40 ng per pool (10 ng per pool recommended)
Sample Types	Genomic DNA from blood, saliva, or tissue; FFPE DNA
Total Assay Time	3 hours
Hands-On Time	75 minutes
Design Coverage	100 %
Coverage Uniformity (targets with >0.2X mean coverage)	≥ 95%
On-Target Aligned Reads	≥ 90%

A. SNVs: single nucleotide variations; indels: insertions-deletions

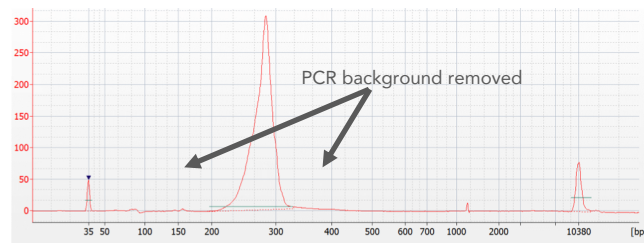
CleanPlex Background Cleaning Chemistry

The CleanPlex for MGI BRCA1 & BRCA2 Panel is powered by Paragon Genomics' CleanPlex Technology, which uses a proprietary multiplex PCR background cleaning chemistry to effectively remove non-specific PCR products, resulting in best-in-class target enrichment performance and efficient use of sequencing reads.

Library generated *without* CleanPlex technology



Library generated *with* CleanPlex technology



High Concordance Between Expected and Detected Variant Frequency

Gene	Variant	Expected Frequency	Observed Frequency	Standard Deviation
BRCA2	N289H	7.5	6.9	0.1
BRCA2	N991D	7.5	10.2	0.8
BRCA2	D1420Y	32.5	32.2	1.3
BRCA2	N1784fs	40	38.6	2.6
BRCA2	V2466A	100	99.3	0.0
BRCA1	S1613G	7.5	7.0	0.5
BRCA1	R1443STOP	32.5	32.0	0.8
BRCA1	K1183R	7.5	8.6	0.6
BRCA1	P871L	15	14.5	1.7
BRCA1	K820E	7.5	6.3	0.3
BRCA1	D435Y	7.5	10.4	0.5

Input DNA: 10 ng of Horizon Discovery HD795 BRCA Somatic Multiplex Reference Standard gDNA (n=3)

Ordering Information

The CleanPlex for MGI BRCA1 & BRCA2 Panel contains CleanPlex for MGI Multiplex PCR Primers and CleanPlex Targeted Library Kit. CleanPlex for MGI Indexed PCR Primers and CleanMag® Magnetic Beads are ordered separately to complete the workflow from input DNA to sequencing-ready NGS libraries. For more information about CleanPlex for MGI Indexed PCR Primers, and additional product configurations please visit www.paragongenomics.com/store_mgi/

Product	SKU
CleanPlex for MGI BRCA1 & BRCA2 Panel (8 reactions)	317003
CleanPlex for MGI BRCA1 & BRCA2 Panel (96 reactions)	317004
CleanPlex for MGI Single-Indexed PCR Primers, Set A (16 indexes, 32/96 reactions)	318001 318007
CleanPlex for MGI Single-Indexed PCR Primers, Set B (16 indexes, 32/96 reactions)	318002 318008
CleanPlex for MGI Single-Indexed PCR Primers, Set C (16 indexes, 32/96 reactions)	318003 318009
CleanPlex for MGI Single-Indexed PCR Primers, Set D (16 indexes, 32/96 reactions)	318004 318010
CleanPlex for MGI Single-Indexed PCR Primers, Set E (16 indexes, 32/96 reactions)	318005 318011
CleanPlex for MGI Single-Indexed PCR Primers, Set F (16 indexes, 32/96 reactions)	318006 318012
CleanMag Magnetic Beads (1 mL)	718001
CleanMag Magnetic Beads (5 mL)	718002
CleanMag Magnetic Beads (60 mL)	718003

Learn More

To learn more about CleanPlex for MGI Ready-to-Use NGS Panels, visit www.paragongenomics.com/cleanplex_mgi_panels/

To learn more about CleanPlex Technology, visit www.paragongenomics.com/cleanplex_technology/