CleanPlex® Ready-to-Use NGS Panels | Product Sheet

CleanPlex® Hereditary Cancer Panel v2

Fast and reliable analysis of genes associated with hereditary cancers

Highlights

- **Up-to-date Gene Content**
  Interrogate 37 genes associated with cancers of the breast, ovary, uterus, skin, prostate, and gastrointestinal system, including rs12516 and rs8176318 in *BRCA1* and Boland inversion* in *MSH2*
- **Fast, Streamlined Workflow**
  Generate sequencing-ready libraries in just 3 hours using a rapid, three-step protocol and only two primer pools
- **Superb Performance**
  Prepare high-quality NGS libraries using CleanPlex® Technology to enable efficient use of sequencing reads and reduce costs

The CleanPlex Hereditary Cancer Panel v2 is a targeted resequencing assay designed for analyzing genes associated with an increased risk of developing hereditary cancers. The panel is expertly curated using the latest research findings to target 37 genes and both single nucleotide variants (SNVs) and insertion-deletion mutations (indels). Furthermore, it also detects hotspot mutations rs12516 and rs8176318 in the *BRCA1* 3' UTR and structural rearrangement of exons 1-7 in *MSH2* (Boland inversion)*. This panel is specifically designed to detect inherited mutations and is not appropriate for the detection of other types of mutations in acquired cancers. Starting with 20 ng of high-quality genomic DNA (10 ng per primer pool), sequencing-ready libraries can be prepared using a streamlined workflow in just 3 hours.

CleanPlex Hereditary Cancer Panel v2 Specifications

Parameter	Specification
Enrichment Method	Multiplex PCR
Sequencing Platforms	Illumina®, Ion Torrent™
Number of Genes	37
Targets	Genes and hotspots associated with hereditary breast, ovarian, uterine, skin, prostate, gastric, colorectal, and pancreatic cancers
Cumulative Target Size	202 kb
Variant Types	SNVs, indels [A]
Number of Amplicons	1,447
Amplicon Size	105 – 299 bp (214 bp on average)
Number of Primer Pools	2
Input DNA Requirement	5 – 40 ng per pool (10 ng per pool recommended)
Sample Types	Genomic DNA from blood or saliva
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	≥ 95%

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

CleanPlex Streamlined Workflow

The CleanPlex Hereditary Cancer Panel v2 offers a simple 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
7 hours of total assay time, 75 minutes of hands-on time

PARAGON GENOMICS

CleanPlex Hereditary Cancer Panel v2 Gene List

APC	*BRIP1*	*MEN1*	*PALB2*	*RNF139*
ATM	*CDH1*	*MITF*	*PMS2*	*SMAD4*
BAP1	*CDK4*	*MLH1*	*POLD1*	*STK11*
BARD1	*CDKN2A*	*MRE11A*	*POLE*	*TP53*
BLM	*CHEK2*	*MSH2*	*PTEN*	*XRCC2*
BMPR1A	*EPCAM*	*MSH6*	*RAD50*	
BRCA1	*FAM175A*	*MUTYH*	*RAD51C*	
BRCA2	*GREM1*	*NBN*	*RAD51D*	

Target Type: Exon
Coding Sequence (CDS)

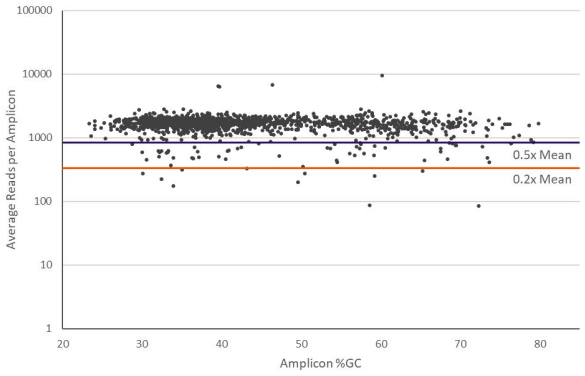
The CleanPlex Hereditary Cancer Panel v2 also detects hotspot mutations rs12516 and rs8176318 in the *BRCA*1 3′ UTR and structural rearrangement of exons 1-7 in *MSH2* (5′ and 3′ breakpoints of Boland inversion)*. Exons 14 and 15 of the *PMS2* gene are not covered.

*Detection of structural rearrangement of exons 1-7 in MSH2 (Boland inversion) was validated using synthetic oligo constructs simulating the inversion.

CleanPlex Amplicon Library Uniformity

The CleanPlex Hereditary Cancer Panel v2 is powered by Paragon Genomics' proprietary multiplex PCR chemistry, uniquely optimized for superior library uniformity for best-in-class target enrichment performance. With our background cleaning chemistry to effectively remove non-specific PCR products, our technology enables the most efficient use of sequencing reads.

Hereditary Cancer Panel v2 Uniformity Plot



Recommended Sample Multiplexing for CleanPlex Hereditary Cancer Panel v2

Instrument	Samples per Run [A]
iSeq™ 100 System	11
MiniSeq™ System (mid-output)	22
MiniSeq System (high-output)	69
MiSeq® System (v2 chemistry Nano)	2
MiSeq System (v2 chemistry Micro)	11
MiSeq System (v2 chemistry)	41
MiSeq System (v3 chemistry)	69

A. Samples per run at an intended average read depth of 500X.

Ordering Information

The CleanPlex Hereditary Cancer Panel v2 contains CleanPlex Multiplex PCR Primers and CleanPlex Targeted Library Kit. CleanPlex Indexed PCR Primers and CleanMag® Magnetic Beads are ordered separately to complete the workflow from input DNA to sequencing-ready NGS libraries. For more indexing options, including Ion Torrent™ indexes, and additional product configurations visit www.paragongenomics.com/store/

Product	SKU
CleanPlex Hereditary Cancer Panel v2 (8 reactions)	916114
CleanPlex Hereditary Cancer Panel v2 (96 reactions)	916115
CleanPlex Dual-Indexed PCR Primers for Illumina® Set A1 (16 indexes, 16 reactions)	716005
CleanPlex Dual-Indexed PCR Primers for Illumina® Set A (96 indexes, 96 reactions)	716006
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 Ready-to-Use NGS Panels, visit www.paragongenomics.com/cleanplex_panels/

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

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