

CleanPlex® OncoZoom® Cancer Hotspot Panel

Rapid survey of hotspot regions in 65 oncogenes and tumor suppressor genes

Highlights

- Relevant Gene Content**
 Target 2,900+ hotspots in 65 genes with known cancer associations
- Fast, Single-Tube Workflow**
 Generate sequencing-ready libraries in just 3 hours using a three-step, single-tube 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® OncoZoom® Cancer Hotspot Panel is a multiplex PCR-based targeted resequencing assay designed for rapid detection of somatic mutations across the hotspot regions of 65 oncogenes and tumor suppressor genes. Starting with just 10 ng of DNA, sequencing-ready libraries can be prepared using a single-tube 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.

CleanPlex OncoZoom Cancer Hotspot Panel Gene List

<i>ABL1</i>	<i>CTNNB1</i>	<i>FGFR3</i>	<i>JAK3</i>	<i>NF2</i>	<i>RET</i>
<i>AKT1</i>	<i>DDR2</i>	<i>FLT3</i>	<i>KDR</i>	<i>NOTCH1</i>	<i>SMAD4</i>
<i>ALK</i>	<i>DNMT3A</i>	<i>FOXL2</i>	<i>KIT</i>	<i>NPM1</i>	<i>SMARCB1</i>
<i>APC</i>	<i>EGFR</i>	<i>GNA11</i>	<i>KRAS</i>	<i>NRAS</i>	<i>SMO</i>
<i>ATM</i>	<i>ERBB2</i>	<i>GNAQ</i>	<i>MAP2K1</i>	<i>PDGFRA</i>	<i>SRC</i>
<i>BRAF</i>	<i>ERBB3</i>	<i>GNAS</i>	<i>MET</i>	<i>PIK3CA</i>	<i>STK11</i>
<i>BRCA1</i>	<i>ERBB4</i>	<i>HNF1A</i>	<i>MLH1</i>	<i>PIK3R1</i>	<i>TERT</i>
<i>BRCA2</i>	<i>EZH2</i>	<i>HRAS</i>	<i>MPL</i>	<i>PTCH1</i>	<i>TP53</i>
<i>CDH1</i>	<i>FBXW7</i>	<i>IDH1</i>	<i>MSH6</i>	<i>PTEN</i>	<i>TSC1</i>
<i>CDKN2A</i>	<i>FGFR1</i>	<i>IDH2</i>	<i>MTOR</i>	<i>PTPN11</i>	<i>VHL</i>
<i>CSF1R</i>	<i>FGFR2</i>	<i>JAK2</i>	<i>NF1</i>	<i>RB1</i>	

OncoZoom Cancer Hotspot Panel Specifications

Parameter	Specification
Enrichment Method	Multiplex PCR
Sequencing Platforms	Illumina®, Ion Torrent™
Number of Genes	65
Targets	2,900+ hotspots from 65 oncogenes and tumor suppressor genes
Cumulative Target Size	55,199 bp
Variant Types	SNVs, indels ^A
Number of Amplicons	601
Amplicon Size	125 – 175 bp (146 bp on average)
Number of Primer Pools	1
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	≥ 95%

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

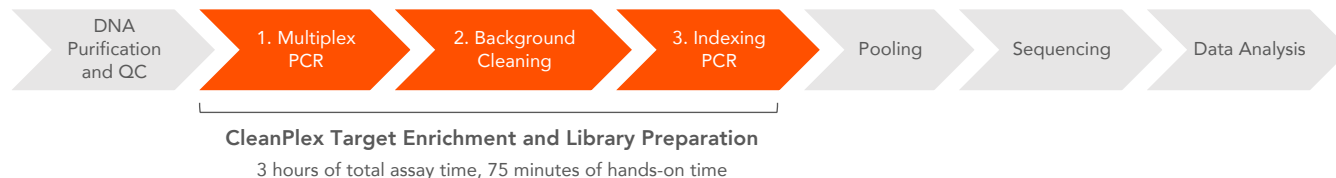
High Concordance Between Expected and Detected Variant Frequency

Gene	Mutation	Expected Frequency	Observed Frequency	Standard Deviation
EGFR	p.E746_A750>VP	1.0	1.3	0.4
EGFR	p.L858R	1.0	0.9	0.2
EGFR	p.T790M	1.0	1.2	0.7
EGFR	p.V769-D770insASV	1.0	0.7	0.2
KRAS	p.G12D	1.3	1.4	0.5
NRAS	p.A59T	1.3	1.4	0.5
NRAS	p.Q61K	1.3	1.4	0.5
PIK3CA	p.E545K	1.3	1.4	0.4

Input DNA: 10 ng of Horizon Discovery HD780 Multiplex I cfDNA Reference Standard (n=9)

CleanPlex Single-Tube Workflow

The CleanPlex OncoZoom Cancer Hotspot Panel 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, single-tube workflow to minimize sample loss and handling errors. Each step consists of a thermal cycling or incubation condition, followed by “with bead” purification using magnetic beads.



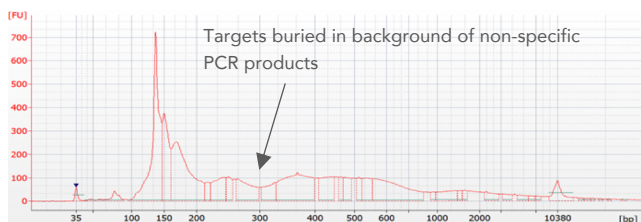
Sensitive Detection

The CleanPlex OncoZoom Cancer Hotspot Panel allows detection of somatic mutations down to 1% frequency using 10 ng of input DNA. With an average amplicon size of 146 bp, the panel is also compatible with degraded samples such as DNA isolated from FFPE tissues.

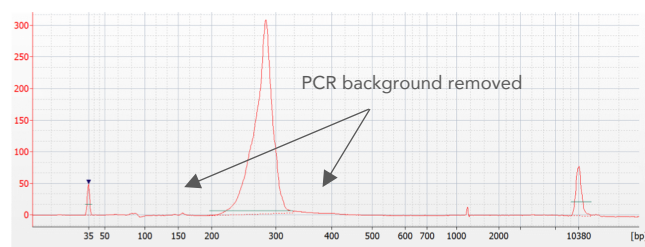
CleanPlex Background Cleaning Chemistry

The CleanPlex OncoZoom Cancer Hotspot 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



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/

Recommended Sample Multiplexing for CleanPlex OncoZoom Cancer Hotspot Panel

Instrument	Samples per Run ^A
iSeq™ 100 System	2
MiniSeq™ System (mid-output)	5
MiniSeq System (high-output)	16
MiSeq System (v2 chemistry Micro)	2
MiSeq System (v2 chemistry)	9
MiSeq System (v3 chemistry)	16
NextSeq™ System (mid-output)	86

A. Samples per run at an intended average read depth of 5,000X

Ordering Information

The CleanPlex OncoZoom Cancer Hotspot Panel 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 OncoZoom Cancer Hotspot Panel (8 reactions)	916001
CleanPlex OncoZoom Cancer Hotspot Panel (96 reactions)	916002
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

Paragon Genomics, Inc. | 3521 Investment Blvd Suite 1, Hayward CA 94545, USA | +1.650.822.7545
www.paragongenomics.com | techsupport@paragongenomics.com

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