PILLAR BIOSCIENCES

Pillar® ONCO/Reveal™ Custom Panels

ONCO/Reveal Custom Panels are robust NGS assays that interrogate a customer-defined set of gene regions of interest. Custom assays are designed using the ampPD™ intelligent primer design platform. All Pillar assays feature proprietary Stem-Loop Inhibition-Mediated amplification (SLIMamp®) technology, a tiled amplicon-based library prep chemistry for efficient single-tube target enrichment. Variant calls are made using the Pillar Variant Analysis Toolkit (PiVAT®) bioinformatics pipeline software.

Disease states	Oncology, genetic diseases, ophthalmology, familial hypercholesterolemia, thalassemia, metabolism, carrier screening, NIPT, PGx, IBD, and more
Sample types	Solid tumors, liquid biopsy, myeloid, germline, FFPE, blood, plasma, serum, other biofluids
Variant types	Fusions, CNV, SNV, indels
Applications	Research, clinical trials, LDTs, clinical, companion diagnostics
Coverage	Hotspots or full gene CDS (overlapping amplicons) from single-tube amplification
PiVAT	Cloud or local installation
Support	Field application scientist team

Simple NGS library prep workflow

Maintain control of samples and results with single-tube, tiled amplification that can be performed in-house by any NGS lab

Sensitive and robust chemistry

Achieve variant detection as low as 1% VAF‡ without UIDs and 0.1% with UIDs even with limited DNA input or poor sample quality

Reduced fully-loaded lab costs

Improve lab efficiency with quicker turnaround time and reduced “no calls”, repeat testing, and difficult interpretation decisions

Simple, one-day workflow

Gene-specific PCR & cleanup · Indexing PCR & cleanup · Quantitation & normalization · Load sequencer

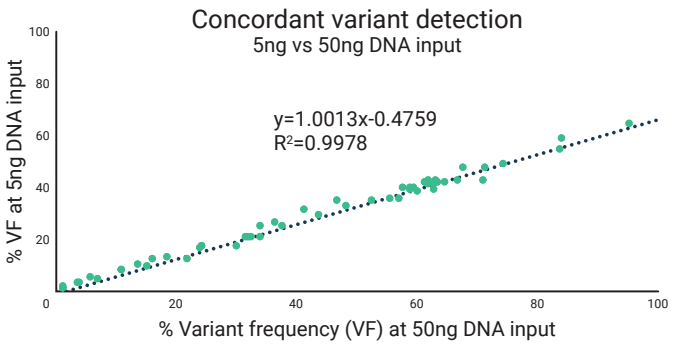
†VAF, variant allele frequency; ‡UID, unique ID; also known as unique molecular ID (UMI)

Panel specifications

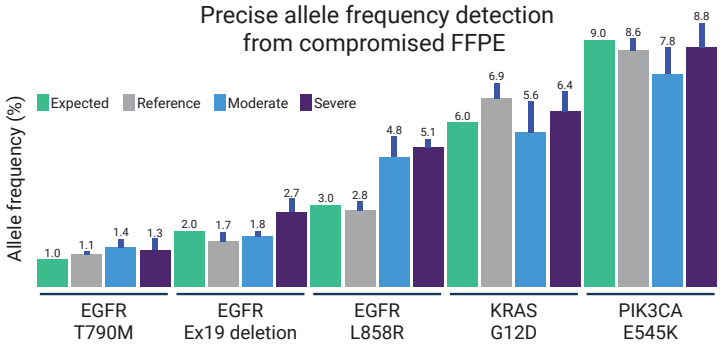
Enrichment chemistry	Multiplex PCR using tiled amplicons
Number of pools	**1 pool**
Number of amplicons	Up to 5,000
Variant types	SNVs, indels, fusions, CNVs
Limit of detection (LoD)	1%-2% MAF without UIDs (10ng input DNA) or 0.1%-0.2% MAF with UIDs (20ng input DNA)
Input DNA range	1ng to 80ng (10ng recommended)
Sample types	Genomic DNA, Cell-free DNA, FFPE DNA, fresh frozen tissue, RNA
Design coverage	>90%
Mapping rate*	>90%
% on-target aligned reads*	>90%
Coverage uniformity (% targets with >0.2X mean coverage)*	>90%
Total assay time (from sample to sequencer)	<8 hours
Interactive design and functional testing	Yes
Designer; Analysis software	ampPD; PiVAT
Sequencing platforms	Illumina®; assays are coming soon for MGISEQ™ and Ion Torrent™ platforms
Configurable kit contents	Primer pool, indexing primers, UDG, beads

*Only guaranteed with testing and optimization

Sensitive and robust variant detection



ONCO/Reveal assays is highly precise even with low DNA inputs, with high concordance (R^2 >99%) between input amounts across a wide range of VAFs. In the figure above, VFs were detected by the ONCO/Reveal Lung and Colon Cancer Panel. Assays and analyses were performed at Dartmouth Hitchcock Medical Center and presented at AMP 2016.



ONCO/Reveal assays are accurate, precise, repeatable and sensitive to near the limit of detection regardless of FFPE quality. In the figure above, formalin-compromised reference standards (Horizon Discovery) were evaluated using the ONCO/Reveal Lung and Colon Cancer Panel, which demonstrated accurate results from degraded samples.
N=10; error bars=standard deviation

Design and delivery timelines

2-5 weeks without testing and optimization

6-10 weeks with testing and optimization

Learn more at
pillar-biosciences.com

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