

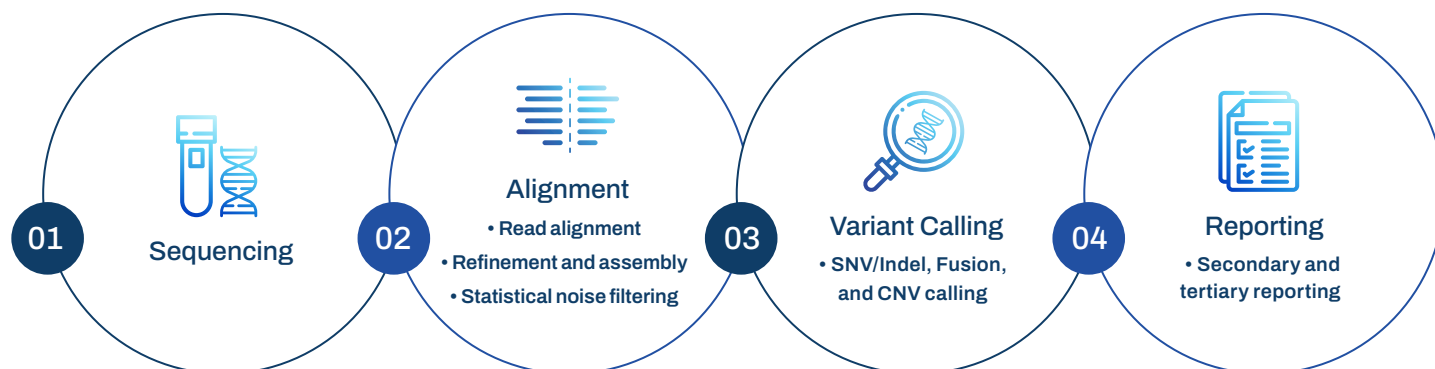
PiVAT®

Enabling Rapid NGS Data to Report Workflows to Support Research and Clinical Applications

The **Pillar Variant Analysis Toolkit (PiVAT)** is Pillar Biosciences' purpose-built secondary analysis platform designed to process sequencing data generated with all Pillar Biosciences NGS panels using our SLIMamp® chemistry. PiVAT combines panel-aware alignment, local read assembly, and optimized variant calling to support high-confidence analysis from paired-end FASTQ files through analysis outputs and report-ready results.

The pipeline is tuned for the panel content, amplicon design, variant classes, and performance requirements of all Pillar panels, while maintaining deployment flexibility for laboratories that require either local or cloud-based operation. Research use only (RUO) PiVAT software comes with easy integration into the user's informatics infrastructure for use in laboratory-developed test (LDT) settings, while the IVD version of PiVAT is available with Pillar's IVD products.

PiVAT Secondary Analysis Workflow



Key Benefits for Pillar Panel Workflows

Optimized for Pillar's SLIMamp chemistry:

Analysis pipelines are developed and optimized alongside the development of Pillar's RUO and IVD assays to provide the best panel-specific performance.

Amplicon-aware variant calling:

PiVAT supports amplicon-level variant calling for tiled amplicon designs to help resolve artifacts from uneven coverage, primer overlap, and amplicon-specific noise.

Rapid turnaround:

Generate reports in minutes to hours, not days, to enable faster genomic profiling and precision NGS testing that is required by modern day patient management.

High-sensitivity variant calling:

Supports variant calling for Pillar assays across validated sample types, including cfDNA, FFPE tissue, and blood-based workflows.

Complex variant support:

Supports small to very large internal tandem duplication (ITD), copy number variation (CNV), fusion, methylation, and MSI analysis across various Pillar panels.

OncoKB™ integration:

Cloud-PiVAT users also have the option to generate tertiary analysis reports for Pillar panels using OncoKB™, an FDA-recognized oncology knowledge base.

Flexible deployment:

Available through local installation or cloud analysis to accommodate different data-governance, IT, and operational requirements.

Operational efficiency:

Multiple-panel run support, sample-sheet generation tools, and automation-friendly outputs can help reduce manual handling and streamline data-to-result workflows.

Core Capabilities

PiVAT® is available through deployment models that support different laboratory needs, from controlled local installations to analysis on cloud instances. Maintain full control over your processes and data.

Capability	Description
Supported Inputs and Outputs	Supported formats: FASTQ files (paired-end preferred), BAM, VCF, PDF
Tertiary Reporting	Tertiary bioinformatics report powered by OncoKB™ available in cloud-based PiVAT
HIPAA Compliance	Cloud-based PiVAT is fully compliant with HIPAA requirements
Memory Efficient	Reduced hardware requirements allow deployment on cost-efficient systems with memory as low as 32GB
Very Long ITDs	Call >300bp ITDs with short read configurations (2 x 150) at MRD-scale VAFs (1×10^{-5})
Security and Authentication	Integration with enterprise user directories for authentication and secure credential management
Access Control	Tiered user privileges and group-based permission management
Controlled Data Sharing	Control how data is shared within your user group
Sample Sheet Generation	Integrated sample sheet module mitigates possible human error
Automation and Integration	Automates data delivery to downstream analysis and laboratory systems via structured formats

Ordering Information

Product	Part Number
Cloud-Based PiVAT Data Analysis	SFW-1038
Cloud-Based PiVAT Tertiary Report	SFW-1039
PiVAT Cloud Yearly Subscription	SFW-1037
PiVAT RUO Pipeline	SFW-1033
PiVAT RUO Platform	SFW-1034
PiVAT Yearly Maintenance and Upgrade Plan	SFW-1042
oncoReveal® CDx PiVAT 2.x IVD Workstation	SFW-2012

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