AVENIO Oncology Analysis Software

Exceptional performance, minimal effort

AVENIO Oncology Analysis Software

The AVENIO Oncology Analysis Software processes sequencing data from plasma and tissue samples run using the AVENIO ctDNA Analysis Kits and AVENIO Tumor Tissue Analysis Kits.

The interface guides users confidently through the post-sequencing workflow. Intelligent bioinformatics with advanced proprietary algorithms and error suppression strategies deliver comprehensive results with proven accuracy and reproducibility.[1,2]

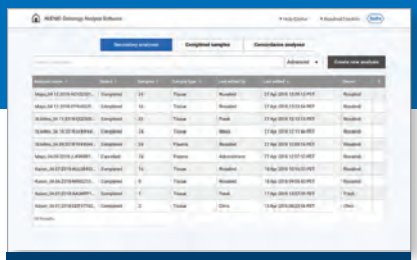
Powerful and intuitive, the AVENIO Oncology Analysis Software offers simplicity, efficiency and accuracy.

For Research Use Only.
Not for use in diagnostic procedures.

Log-in

Select plasma or tissue

Run settings



Analysis

Results

Reporting

Set up and run the analysis with ease

The AVENIO Oncology Analysis Software requires minimal expertise to set up and run an analysis. This allows laboratory and bioinformatics professionals to focus more of their time on the findings and insights, and less on managing information systems.

Intuitive user interface:

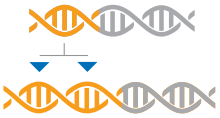
- Select plasma or tissue
- Offers two user types (Admin, Lab User)
- Provides real-time tracking of analysis status
- Enables filtering, custom annotation, and analytical concordance reporting between tissue and plasma
- Provides reports in PDF format, as well as variant results in VCF and BAM file formats.

With its ability to process approximately 800 million reads in less than a day, the AVENIO Oncology Analysis Software can be set up to run in the evening, delivering results ready for review in the morning.

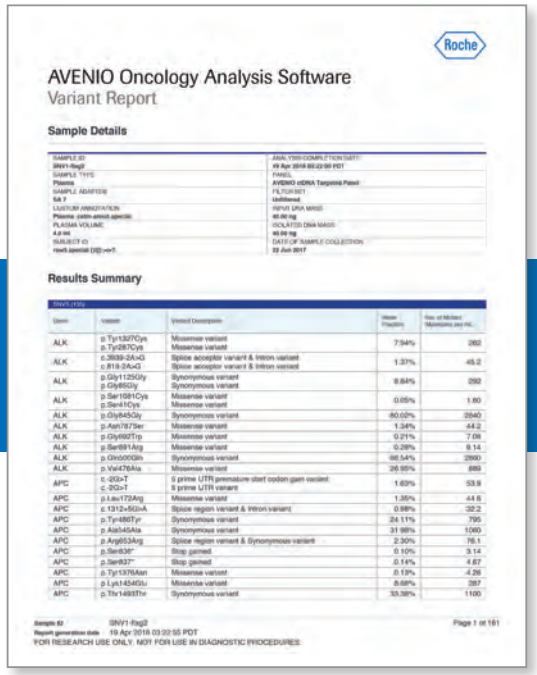
SNV
Single Nucleotide Variant

Indel
Insertion or Deletion

Fusion



CNV
Copy Number Variant


AVENIO Oncology Analysis Software
Variant Report
Sample Details
Results Summary

Detect all four mutation classes in a single DNA workflow

The software's bioinformatic algorithms and checkpoints have been optimized to enable accurate variant calls across all four mutation classes.[1]

Detect low frequency alleles with exceptional sensitivity and specificity

The AVENIO Oncology Analysis Software employs integrated digital error suppression (iDES) strategies in the ctDNA workflow, combining molecular barcodes with in silico error suppression techniques. This proprietary method enables detection of low frequency alleles down to 0.1% with exceptional sensitivity and specificity.[1,2] The tumor tissue workflow employs enzymatic error suppression and molecular barcodes for accurate detection of all four mutation classes from DNA only.

Performance metrics[1]

AVENIO ctDNA Analysis Kits

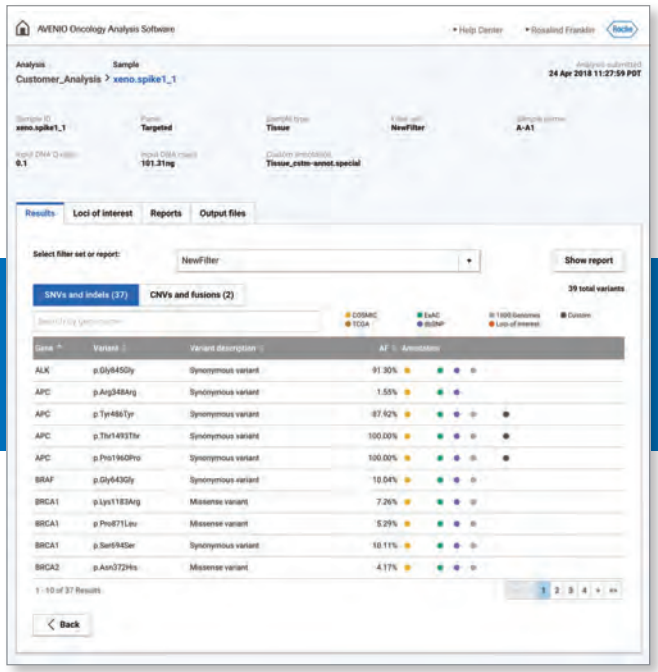
Mutant Allele Frequency/ Copy Number	SNVs		Indels		Fusions		CNVs	
	0.5%*		1.0%*		1.0%		At LOD**	
AVENIO Tissue Kit	Sensitivity	PPV	Sensitivity	PPV	Sensitivity	PPV	Sensitivity	PPV
Targeted	>99%	>99%	>99%	>99%	>99%	>99%	>99%	>99%
Expanded	>99%	>98%	>99%	>99%	>99%	>99%	>96%	>99%
Surveillance	>99%	>99%	>99%	>99%	>99%	>99%	>99%	>99%

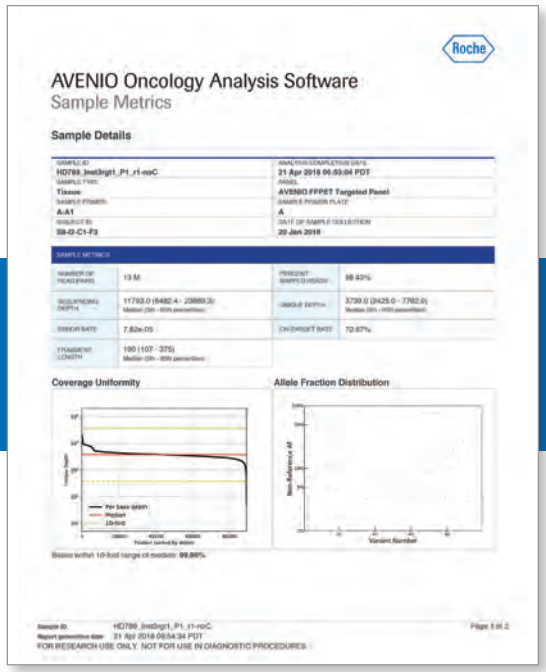
*Detects variants down to 0.1%. **Samples tested at limit of detection (LOD): MET 2.3 copies in cfDNA; EGFR 3.2 copies in cfDNA; ERBB2 4.5 copies in cfDNA. Performance samples - cell line mixes, cfDNA 10 ng-50 ng input. Sensitivity and Positive Predictive Value (PPV) metrics based on typical product performance. Sensitivity and PPV performance reported per variant. SNV performance data based on hotspot calls; CNV performance based on ERBB2, EGFR and MET genes. Results above were tested at the stated mutant allele frequencies. The AVENIO ctDNA Analysis Kits also achieve >99.99% per base specificity across each of the panels. Stated performance requires at least 40 million reads per sample for Targeted Kit and 60 million reads per sample for Expanded and Surveillance Kits. Sequencing performed on an Illumina NextSeq 500 instrument.

AVENIO Tumor Tissue Analysis Kits

Mutant Allele Frequency/ Copy Number	SNVs		Indels		Fusions		CNVs	
	5%*		5%		5%		5 copies	
AVENIO ctDNA Kit	Sensitivity	PPV	Sensitivity	PPV	Sensitivity	PPV	Sensitivity	PPV
Targeted	>99%	>99%	>99%	>98%	>99%	>99%	>99%	>99%
Expanded	>99%	>98%	>99%	>99%	>99%	>99%	>99%	>99%
Surveillance	>99%	>99%	>99%	>99%	>99%	>99%	>99%	>99%

Samples: 2x10 µm FFPE tissue curls/sections DNA input: 20 ng of amplifiable DNA, total DNA amount for each sample determined by input QC. Sensitivity and Positive Predictive Value (PPV) metrics based on typical product performance. Sensitivity and PPV performance reported per variant. SNV performance is panel wide. Indel, Fusion and CNV performance based on whitelist variants. CNV performance data currently based on ERBB2 and EGFR genes. Results above were tested at the stated mutant allele frequencies. AVENIO Tumor Tissue Analysis Kits also achieve >99.999% per base specificity across each of the panels. Stated performance requires at least 20 million reads per sample for Targeted, Expanded and Surveillance Kits. Sequencing performed on an Illumina NextSeq 500 instrument.





Call mutations with confidence

Five leading oncology databases, a curated loci of interest list and a customizable annotation database are integrated into the AVENIO Oncology Analysis Software. This allows quick and easy access to trusted public resources for cross-referencing and verification of results:

- COSMIC
- TCGA
- ExAC
- dbSNP
- 1000 Genomes

These annotation databases can help users call mutations with increased confidence.

Control quality across the workflow

The AVENIO Oncology Analysis Software provides a sequencing quality report with key metrics such as sequencing depth, number of reads, on-target rate, coverage uniformity, and error rate to confirm quality at different stages in the workflow.

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1. Data on file
2. Newman AM, Lovejoy AF, Klass DM, et al. Integrated digital error suppression for improved detection of circulating tumor DNA. Nature Biotechnology. 2016;34(5):547–555. doi:10.1038/nbt.3520.

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