Alissa Reporter

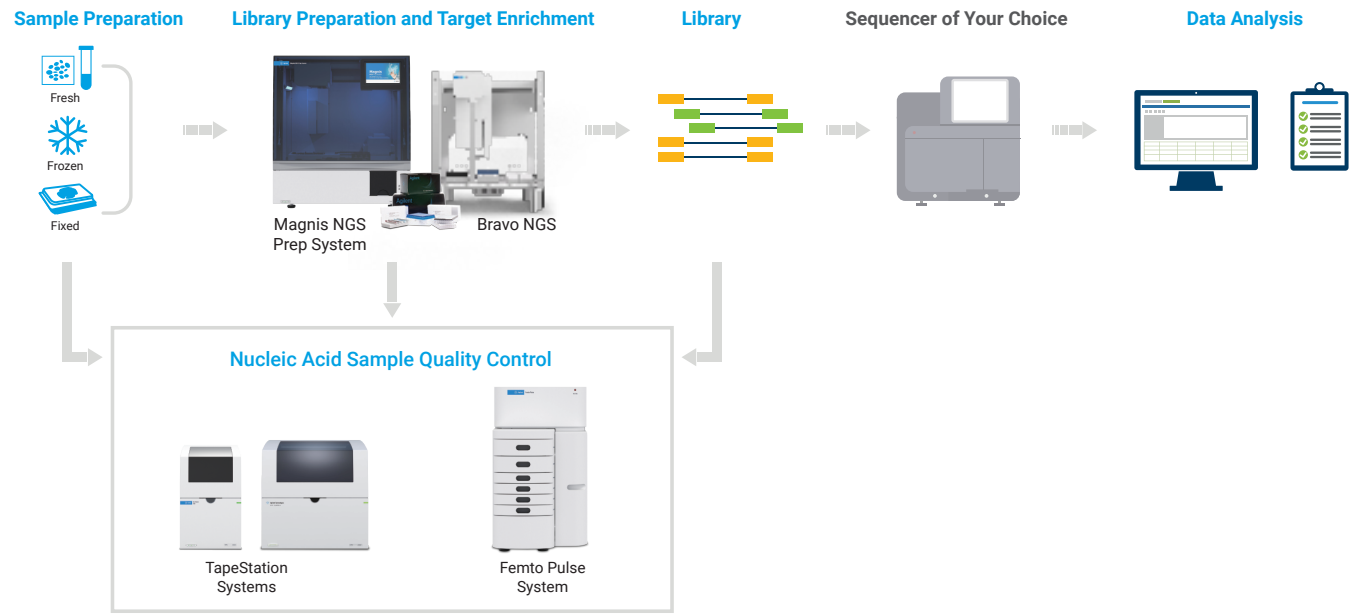
Improving secondary data analysis tools

Introduction

Next-generation sequencing (NGS) technology has created exponential growth in the quantity and complexity of genomic data requiring analysis. Efficient and accurate raw data analysis is critical to your lab's success in identifying relevant variants, correctly classifying variants of interest, uncovering connections to scientific literature, and delivering valuable insights into human disease.

Alissa Reporter has been developed to help users analyze their data. Our informatics platform hosts Alissa Reporter for NGS secondary analysis and is designed to work seamlessly with Agilent SureSelect library prep and enrichment reagent kits. Alissa Reporter is also compatible with the Agilent SureSelect Cancer CGP assay, analyzing the panel's more than 600 genes. This software suite enables improved lab productivity and delivers streamlined NGS data interrogation of constitutional and somatic patient samples.

NGS Workflow



Agilent

Trusted Answers

Streamlined NGS data analysis for the modern laboratory

Alissa Reporter is an intuitive, streamlined, cloud-native NGS secondary analysis software-as-a-service (SaaS) solution that delivers high-performance and fast variant detection from somatic and germline samples (Table 1). This SaaS solution includes integrated genome browsing and a built-in quality control (QC) dashboard. Alissa Reporter automates data upload, analysis, and results export, including integration with your existing Amazon Web Services (AWS) account.

Table 1. Processing times of Agilent's secondary analysis software.

Increased Data Analysis Speed	
SureSelect Cancer CGP DNA assay (40 M)	2-3 hours
Germline exome panels (40 M)	< 1 hour
Somatic exome panels (70 M)	< 2 hours
Optimized SureSelect Cancer CGP DNA and RNA catalog pipelines	**SNV, CNV, TL, TMB, MSI, and RNA gene fusion calling**

Choose Alissa Reporter for improved analysis performance

High-performance variant detection

Alissa Reporter currently supports variant detection from DNA specimens, allowing researchers to find more valuable information from a single genomic sample. The NGS secondary analysis capabilities of Alissa Reporter enable the detection of single nucleotide variants (SNVs), insertions and deletions (indels), internal tandem repeats (ITDs) copy number variation (CNVs), and mitochondrial genome analysis in SureSelect Exome and custom assays and provides additional detection of genomic abberrations and biomarkers such as translocations (TL), RNA gene fusions, TMB and MSI in the SureSelect CGP DNA and RNA catalog assays (Table 2). Additional analysis features in Alissa Reporter are scheduled for the near future to meet the needs of the market. Agilent will steadily increase the number of available analysis features in Alissa Reporter to meet user needs (Table 2).

Table 2. Features of Agilent's secondary analysis software.

	Attribute	Alissa Align and Call	Alissa Reporter v1.1	Alissa Reporter v1.2	Alissa Reporter v1.3
User Friendly	Speed		✓	✓	✓
	Data security	✓	✓	✓	✓
	Customer service (including multi-language support)	✓	✓	✓	✓
	Quality metrics	✓	✓	✓	✓
	UI/UX Ease of use	✓	✓	✓	✓
	Parallel sample processing		✓	✓	✓
Automation	Batch data processing			✓	✓
	Automatic VCF upload to Alissa Interpret			✓	✓
	Automatic data upload and analysis set up via AWS S3 buckets			✓	✓
Constitutional	SNV and Indels			✓	✓
	Mitochondrial genome: SNV and heteroplasmy detection			✓	✓
	Exon-level CNV calling			✓	✓
Somatic	CNV (gene-level)			✓	✓
	SNVs and Indels			✓	✓
	ITD				✓
	Mitochondrial genome: SNV and heteroplasmy detection			✓	✓
	Translocations (SSEL CGP)				✓
	TMB (SSEL CGP)			✓	✓
	MSI (SSEL CGP)				✓
	RNA gene fusions (SSEL CGP)				✓
	Exon skipping				✓
Other	Support for Agilent MBC/UMI		✓	✓	✓
	Use of open-source analysis tools (e.g., GATK Best Practice)		✓	✓	✓

Improved variant calling performance and scalable, accelerated data analysis

Through collaboration with AWS and NVIDIA Clara Parabricks, Alissa Reporter enables accelerated and scalable data analysis at lower costs, serving the high-throughput clinical research market. Alissa Reporter builds on the expertise gained from user feedback during the evolution of Alissa Align and Call development. Alissa Reporter enables users to process samples faster and in parallel, decreasing overall turnaround time by more than 50%. Typically, analyzing germline exome data in parallel requires less than one hour.

Alissa Reporter delivers improved SNV and indel calling performance, increasing SNV (Figure 1) and indel (Figure 2) calling precision and sensitivity by 17 and 28%, respectively, compared to Alissa Align and Call.

Alissa Reporter supports Agilent NGS chemistry

Alissa Reporter turns raw NGS FASTQ files into variant call format (VCF) files—key analysis result files for the Agilent SureSelect Cancer CGP DNA & RNA assays, Agilent Human All Exon V7 and V8 assays, and for custom SureSelect applications. Alissa Reporter supports somatic and germline applications providing high-performance analysis and insights across multiple disease areas.

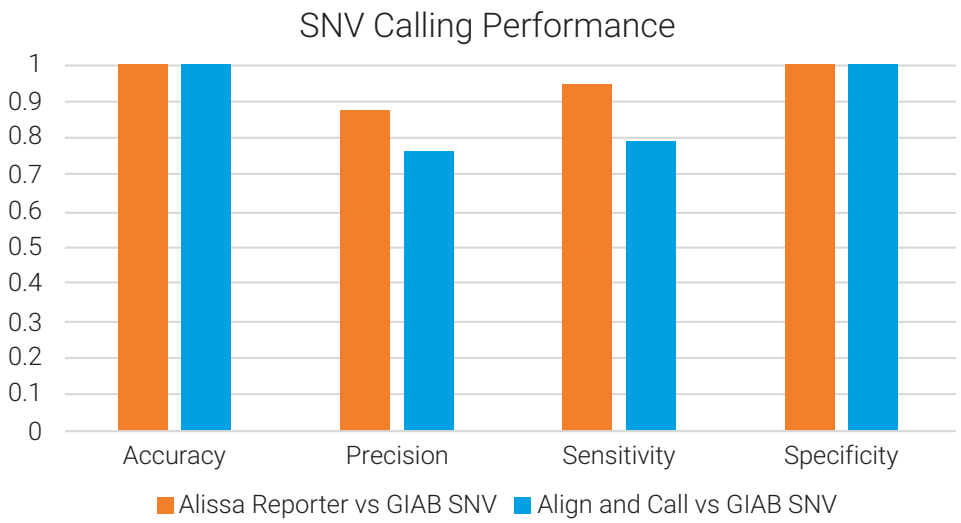


Figure 1. Comparison of Alissa Reporter and Alissa Align and Call SNV calling performance against Genome in a Bottle (GIAB) sample (genome number NA12878) on Agilent SureSelect Human All Exon V8 with SureSelect XT HS chemistry and positional deduplication.

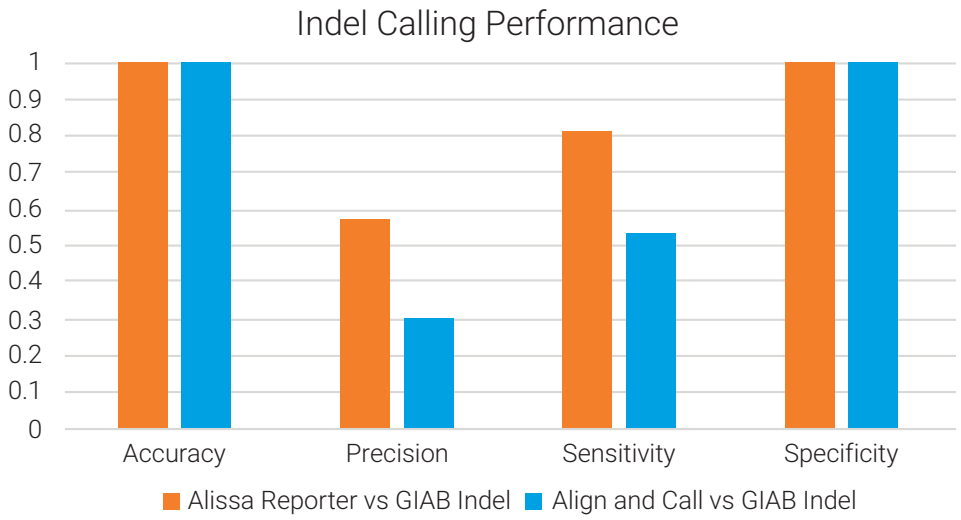


Figure 2. Comparison of Alissa Reporter and Alissa Align and Call indel calling performance against Genome in a Bottle (GIAB) sample (genome number NA12878) on Agilent SureSelect Human All Exon V8 with SureSelect XT HS chemistry and positional deduplication.

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