Leverage the Agilent Integrated Whole Exome Sequencing Solution

Agilent Integrated Whole Exome Sequencing (WES) Solution

Powered by high-performance exome capture, streamlined automation, and data analysis software

Bring WES in-house

- Deliver results faster than send-out services
- Maintain complete control of samples and data
- Build internal expertise in genetic testing

Consolidate multiple assays under WES

- Utilize WES as first-tier test to detect SNVs/indels and CNVs
- Run a single WES assay and build virtual panels to simplify analysis and reporting
- Streamline laboratory workflow

Establish rapid WES workflow

- Achieve fast turnaround time
- Leverage Agilent Magnis NGS Prep system and Agilent Alissa Reporter to offer urgent exome testing
- Reduce labor costs and staffing levels

Agilent Integrated WES Solution

SureSelect DNA and RNA reagent kits

SureSelect Human All Exon V8, custom and predesigned content
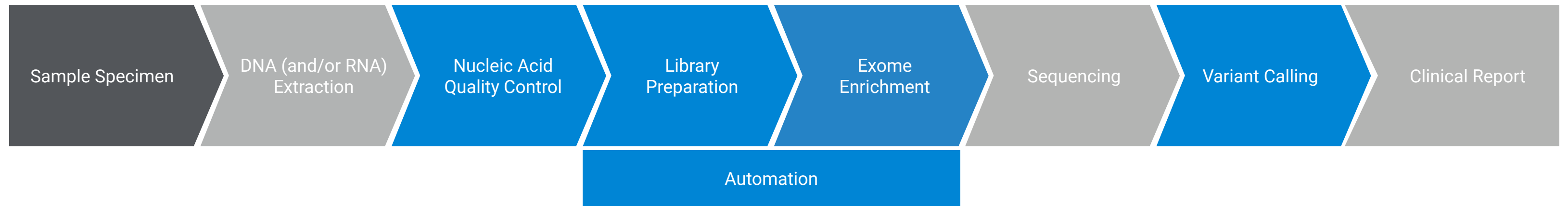
Agilent Bravo NGS Platform

Agilent Magnis NGS Prep system

Alissa Reporter

Integrated Sample-to-Results WES Solution from a Single Vendor

Flexible workflow to accommodate your specific needs

Sample Specimen → DNA (and/or RNA) Extraction → Nucleic Acid Quality Control → Library Preparation → Exome Enrichment → Sequencing → Variant Calling → Clinical Report

Automation

Workflow

The Importance of Sample Quality Control for NGS Workflows

Performing sample quality control (QC) before, and after library preparation delivers valuable information, and each data point is key to your overall success. The Agilent automated electrophoresis portfolio offers multiple solutions that can help you easily implement sample quality control in your NGS workflow.

Agilent Fragment Analyzer systems and Agilent 4150 and 4200 TapeStation systems

Nucleic Acid QC

High-Performance Exome Enrichment

Advanced and proven technology widely adopted by the genomics community

SureSelect Human All Exon V8

Advanced Technology

Improved manufacturing process prints both strands of the design. Probe design is powered by machine learning. Large scale production provides consistent results for years to come.

Versatile Content

Easily enhance exome for specific applications by adding custom or pre-designed content.
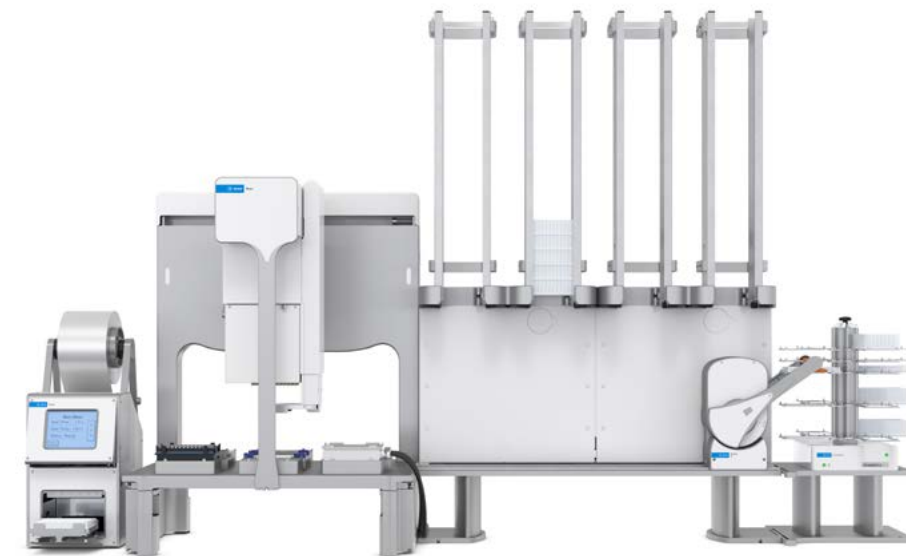
Excellent Performance

Get confident results and achieve efficient sequencing with deeper and more uniform coverage.

Exome Enrichment

Natively Automated WES Workflow

Increase productivity with Magnis NGS Prep system and Bravo liquid handling platform

Magnis NGS Prep system – fully automated, walkaway automation with pre-aliquoted reagents

Bravo NGS workstation – automated liquid handling robot for increased throughput and flexibility

Automation

Alissa Reporter

Seamless germline and somatic variant analysis for WES

Built-in **QC dashboard**

Intuitive visualization tools, automated workflow, and **integrated genome browser**

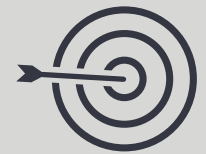**Virtual gene panel** to limit analysis to a subset of user-defined genes

Simultaneous SNV/indel and exon-level CNV detection from exome sequencing

Accelerated time-to-result through NVIDIA Clara Parabricks integration

Automated upload and analysis option through Amazon AWS S3

Variant Calling

Customer Case Study

Medical genetics laboratory at French regional medical center
that previously outsourced WES to a service provider

Goals

– Bring exome in-house
– Deliver results faster than send-out services
– Maintain complete control of samples and data
– Build internal expertise in genetic testing
– Minimize labor costs and staffing burden

Approach

– Evaluated Agilent Human All Exon V8
  and two other exome products

– Decided to implement the exome on the
  Agilent Magnis NGS Prep system, along with
  the Agilent Alissa Reporter for an end-to-end
  WES workflow

Results

– Successfully established a rapid WES workflow
  that can process eight samples per day and
  generate comprehensive, clinical grade reports

– Presented findings at the 2022 ESHG Congress

Magnis SureSelect XT HS
Human All Exon V8

Agilent Magnis NGS
Prep system

Agilent 4200 TapeStation
system

NextSeq 550Dx

Alissa Reporter

Alignment & Calling

Sample → Results

Case 1

Case 2

Case 3

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