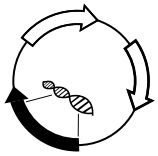
GENEWIZ MULTIOMICS & SYNTHESIS SOLUTIONS | NEXT GENERATION SEQUENCING

AAV Genome Sequencing

GENEWIZ® From Azenta Life Sciences

GENEWIZ® Multiomics & Synthesis Solutions from Azenta Life Sciences offers a suite of in-depth next generation sequencing solutions that can be leveraged for adeno-associated virus (AAV) applications to provide a streamlined approach to AAV-based gene therapy research. Using Illumina® short-read and PacBio® long-read (>10kb) sequencing, these solutions enable high-throughput monitoring of rAAV quality throughout the AAV gene therapy workflow – from initial construct assembly to host transfection.

AAV Gene Therapy Work Flow



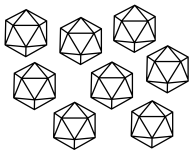
Transgene expression cassettes are cloned into AAV vectors.

Confirm Plasmid Sequences

Perform highly-accurate confirmation of AAV plasmids and inserts using:

- **Illumina short-read DNA sequencing**
- **PacBio long-read DNA sequencing**

PCR + Sanger sequencing is also available



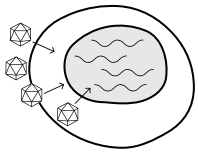
rAAV particles are packaged with the transgene.

Validate Packaged Material

Confirm rAAV vector sequences and identify DNA contaminants in AAV preparation with:

- **Short-read or long-read whole genome sequencing**

Now offering single-stranded to double-stranded conversion of AAV genomes



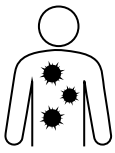
rAAV is delivered to host cells.

Quantify AAV Expression

Measure AAV expression of the target gene post-infection using:

- **Targeted sequencing**
- **RNA sequencing at the RUO and CLIA levels**

qPCR is also available



Transfected cells express the transgenic protein in the host.

Monitor Host Response

Stratify and characterize host immune response during and after infection via:

- **RNA sequencing**
- **Single-cell sequencing**
- **Spatial genomics (i.e., digital spatial profiling)**

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AAV Genome Sequencing

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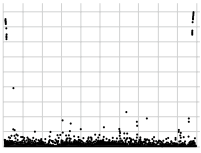
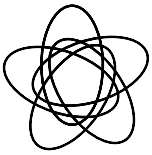
AAV Genome Sequencing Data Analysis



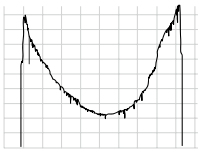
Variant Calling

Distribution of variant allele frequency as compared to the reference AAV genome



Contamination Testing

Mapping distribution of on- and off-target packaged DNA sequences

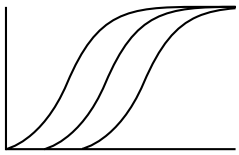


ITR Truncation

Distribution of truncation hot spots across the AAV genome

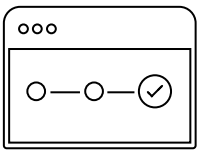
Features & Benefits

- **Trusted partner** supporting over 150 global pharmaceutical and biotech customers in their cell and gene therapy research
- **RUO- and CLIA-grade**, high-capacity, and high-throughput sequencing for projects of virtually any size and sample type
- **Optimized, automated, and scalable** workflows with stringent quality control producing high-quality, consistent results
- **Customized and extensive** bioinformatics solutions with interactive, hands-on analysis



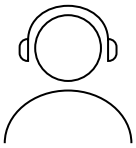
Superior Data Quality

Exceeds manufacturer's benchmarks



Real-Time Project Updates

Through our online system



Ph.D.-Level Support

At every step

NGS Platforms

GENEWIZ Multiomics & Synthesis Solutions is a certified service provider of Illumina NGS platforms and the PacBio Sequel®.

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PacBio® PACBIO CERTIFIED SERVICE PROVIDER

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