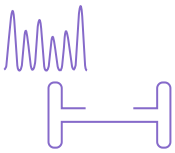
Sample Analysis & Multiomics Solutions | Gene Synthesis

AAV Packaging

Confidence and Completeness in AAV Workflows

With expertise in Sanger and NGS sequencing, gene synthesis, viral packaging, and more, GENEWIZ Genomics Services from Azenta Life Sciences has the capabilities and flexibility to partner with you for research success at any stage of your workflow. This means confidence and reliability in your product quality with the convenience of a single team for consultation and service experience. Our total packaging workflow below connects the novel advantages of our research groups to bring you AAV success.

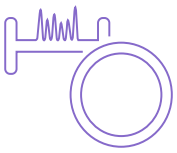
AAV Packaging Workflow



1

AAV ITR Sequencing

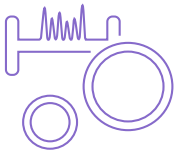
Preservation of ITR Integrity: The GENEWIZ breakthrough Sanger Sequencing and ITR correction process reads and conserves difficult regions that are critical to AAV success



2

AAV Plasmid Synthesis

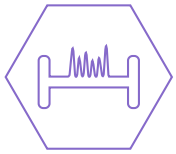
High-Fidelity Gene Synthesis: 99.9% reliability in project delivery rate from a team with over 20 years of gene synthesis experience



3

AAV Plasmid Preparation

Scalable Viral Preps: Mini- to giga-scale quantities of AAV plasmids available from the GENEWIZ proprietary *E.coli* strains for optimal AAV performance



4

AAV Packaging

AAV Packaging: Generate high-quality viral particles with customizable synthesis, serotype, and scale options

Features & Benefits

- **High-Quality Viral Particles –** High purity, high yield, with low endotoxin and empty shell
- **Rapid Project Completion –** AAV packaging in as fast as 13-15 business days (BD) to meet your research deadline
- **Accurate ITR and Transgene Expression** – The GENEWIZ proprietary AAV plasmid synthesis workflow ensures better ITR integrity than traditional methods
- **Ph.D.–Level Partnership –** Our dedicated project management teams provide expert technical consultation to solve any AAV challenge
- **Reliable Project Management –** Global production facilities and local project management ensures reliable progress and proactive communication
- **Customized AAV Delivery –** Suit the needs of your project with over 20 serotypes and a wide range of scales for AAV particles
- **Total Cell and Gene Therapy Solutions –** Protect your IP and reduce logistical delays and errors by working with GENEWIZ as your single partner for sequencing, synthesis, and sample management

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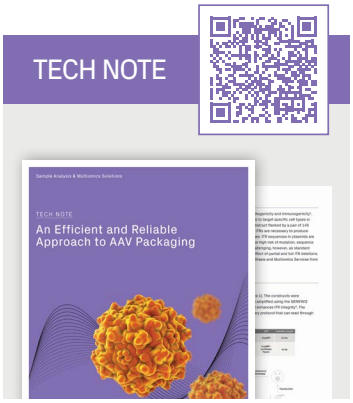
AAV Packaging

An Efficient and Reliable Approach to AAV Packaging

Adeno-associated virus (AAV) is a promising gene therapy vector due to its low pathogenicity and immunogenicity. Previous reports have shown that the ITRs are necessary to produce viral particles, but their structure is problematic for conventional cloning workflows. Because of the high risk of mutation, sequence verification of ITR sequences is a critical part of rAAV quality control. This too is challenging, however, as standard Sanger sequencing fails to read through most ITR sequences. Here, we study the effect of partial and full ITR deletions on AAV packaging and show how proprietary methods developed by GENEWIZ can successfully detect and repair these mutations.



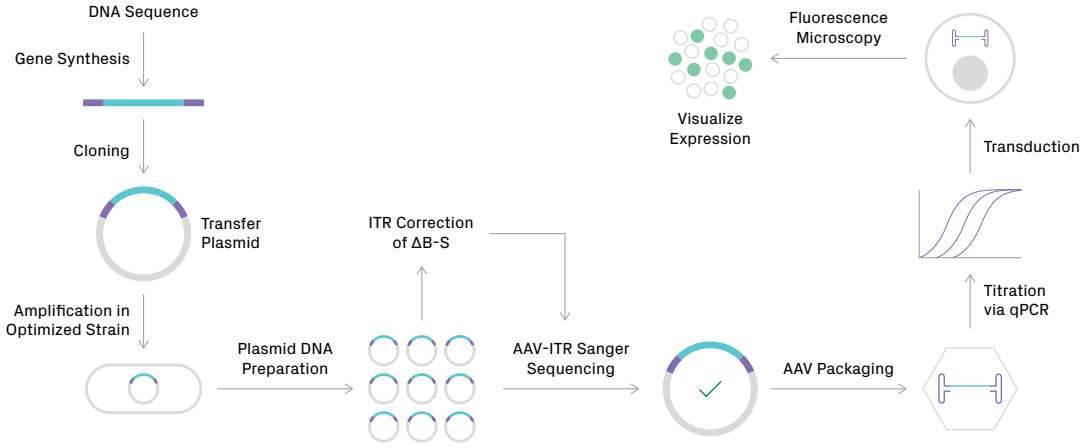


Figure 1. Transfer plasmid construction and testing. (C) Workflow of the study.

Deliverables

AAV particles have a packaging capacity of approximately 4.7 kb and are provided in PBS buffer[1]. They are shipped on dry ice and aliquoted in custom vialing sizes for convenient storage and use.

Featured AAV Serotypes[2]	Volume	Estimated Completion Time	Quality	Titer[3]	Yield
Normal yield: 1, 3b, 5, 7, 8, 9, rh10, PHP.eB, PHP.B, AAVDJ, retro, PHP.S, Olig001, Olig001-PHPA, AAVie	250 µL 500 µL 1 mL Custom (up to 100 mL)	In as few as 13-15 BD	• Ultrapure (≥95% by SDS-PAGE • Low endotoxin (<10 EU/mL)	1×10^{13} GC/mL	Up to 1×10^{16} GC
Low yield: 2, 4, 6, 6.2, 7m8, AAV ShH10, AAV6 [Y705F,Y731F]					

[1] AAV packaging solutions can use GENEWIZ or customer supplied plasmids.

[2] GENEWIZ is continually developing new serotypes through research efforts. Contact our project management team to learn more.

[3] Standard quality control includes titer determination by qPCR with ITR primers. Optional ddPCR and TEM analysis available.

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