Description
These AAV-DJ particles constitutively express the firefly (*Photinus pyralis*) luciferase under the control of a SYN1 promoter.

Background
Adeno-Associated Virus-DJ (AAV-DJ) is a synthetic serotype made from eight different wild-type AAV serotypes (AAV2, 4, 5, 8, 9, avian, bovine, and goat AAV) using DNA shuffling. These modifications allow the AAV-DJ serotype to exhibit improved transduction efficiency *in vitro* and *in vivo* and infect a broader range of cell types compared to the wild-type serotypes.

Synapsin I is a neuron-specific phosphoprotein that coats the cytoplasmic surface of small synaptic vesicles and is involved in axonogenesis and synaptogenesis. Mutations in this protein can result in X-linked neuronal degenerations (example: Rett Syndrome). The proximal region of the synapsin I promoter is sufficient to direct neuron-specific gene expression. The synapsin I promoter has been used to achieve neuron-specific long-term transgene expression *in vivo*.

Application(s)

- Positive control in the transduction of neuronal cells.
- Optimization of transduction assays and tracking of transgene expression over time.

Serotype
AAV-DJ

Formulation
AAV was produced in HEK293-AAV cells and is supplied in PBS-MK (PBS Magnesium-Potassium) buffer containing 0.01% Pluronic F68. Virus particles can be packaged in custom formulations by special request, for an additional fee.

Purification
The purity of the AAV particles was confirmed to be greater than 90% by staining with One-Step Lumitein™ UV Protein Gel Stain (Biotium, 21005-1L). The purity varies with each lot; the exact value will be provided with each shipment.

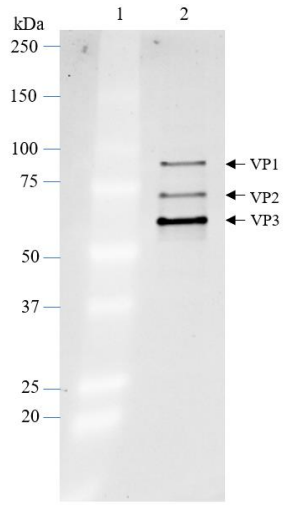

Figure 1. Purified AAV-DJ SYN1- luciferase particles.
Staining of a 4-20% SDS-PAGE gel. The protein marker was loaded in lane 1, and 2 x 10^9 VG (vector genomes) of AAV was loaded in lane 2. AAV viral proteins VP1, VP2, and VP3 are indicated by arrows.

Size and Titer
Two vials (50 µl x 2) of AAV at a titer ≥1 x 10^{12} vector genomes/ml. The titer is determined by qPCR and varies with each lot; the exact value will be provided with each shipment.

Storage
AAV is shipped with dry ice. For long-term storage, it is recommended to store AAV at -80°C. Avoid repeated freeze-thaw cycles. Titers can drop significantly with each freeze-thaw cycle.

Biosafety
Recombinant AAV is inherently replication-deficient and not known to cause any human diseases. Additionally, following transduction, AAV vectors exist episomally and do not integrate into or disrupt the host cell's genome. AAV requires the use of a Biosafety Level 1 facility. BPS Bioscience recommends following all local, federal, state, and institutional regulations and using all appropriate safety precautions.

Validation Data

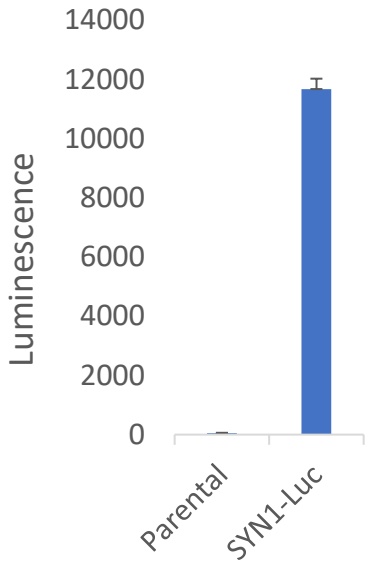

Figure 2. Luciferase activity in HEK293 cells transduced with AAV-DJ SYN1-Luciferase particles. 1 x 10^5 cells/well were transduced in a 6-well plate with AAV-DJ SYN1-Luciferase at an MOI of 2 x 10^4. After 72 hours of transduction, transduced cells or parental HEK293 cells were re-seeded in a 96-well plate at a density of 2 x 10^4 cells/well, and luciferase activity was measured with ONE-Step™ Luciferase Assay System (BPS Bioscience #60690).

Data shown is representative. For lot-specific information, please contact BPS Bioscience, Inc. at support@bpsbioscience.com.

Notes

The AAV-DJ viruses are covered under several patents, including U.S. Patent Nos. 7,588,772, 8,067,014, 8,574,583, and 8,906,387, as well as corresponding foreign patents applications and patent rights. AAV-DJ is used under a license agreement.

Troubleshooting Guide

Visit bpsbioscience.com/lentivirus-faq for detailed troubleshooting instructions. For all further questions, please email support@bpsbioscience.com.

Related Products

Products	*Catalog #*	*Size*
AAV-DJ SaCas9	78478	50 µl x 2
AAV-DJ Luciferase-eGFP	78460	50 µl x 2
AAV-DJ Luciferase-mCherry	78469	50 µl x 2
AAV-DJ MBP-eGFP	82112	50 µl x 2
AAV-DJ SBP-Luciferase	82135	50 µl x 2