Description
Adeno-Associated Virus serotype 9 (AAV9) is one of the most promising serotypes for gene therapy applications. AAV9 transduces a wide range of tissue types, including cardiac and skeletal muscle, liver, pancreas, and eye tissue. AAV8 and AAV9 have recently been used to correct disease-causing mutations and improve muscle function in mouse models of Duchenne muscular dystrophy. AAV9 has significantly lower seroprevalence in the human population than other AAV serotypes, making AAV9 a desirable candidate for therapeutic applications.

These AAV particles constitutively express the firefly (*Photinus pyralis*) luciferase and mCherry genes connected via a T2A linker, under the control of a CMV promoter. The T2A self-cleaving peptide (derived from *Thosea asigna* virus 2A) leads to the efficient cleavage of the transcript and expression of luciferase and mCherry as two separate proteins.

Application(s)

- Use as a positive control for transduction
- Optimize transduction assays and track protein expression over time

Serotype
Wild-type AAV Serotype 9

Formulation
AAV9 was produced in HEK293-AAV cells and is supplied in PBS-MK (PBS Magnesium-Potassium) buffer containing 0.01% Pluronic F68.

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). Purity will vary with each lot; the exact value will be provided with each shipment.

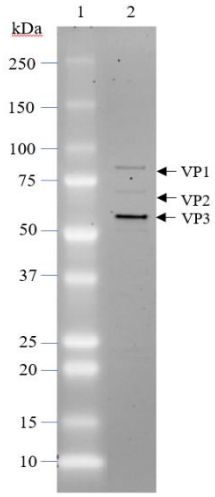

Figure 1. Purified AAV9 Luciferase-mCherry particles.
Staining of a 4-20% SDS-PAGE gel. The protein ladder is in lane 1, and 2 x 10^9 GC (genome copy number) of AAV9 is shown in lane 2. AAV viral proteins VP1, VP2, and VP3 are labeled.

Titer

Two vials (50 µl x 2) of AAV at a titer ≥1 x 10^{12} TU/ml. The titer is determined by qPCR and will vary with each lot; the exact value is 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

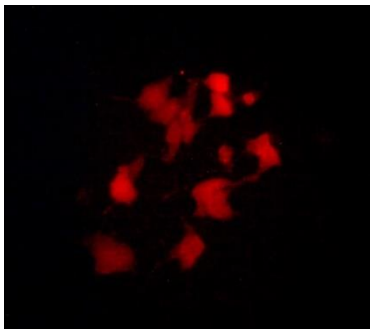

Figure 2. Transduction of HEK293 cells using AAV9 Luciferase-mCherry particles.
1 x 10^5 cells/well were transduced in a 6-well plate with AAV9 Luciferase-mCherry at an MOI of 2 x 10^4. After 72 hours of transduction, mCherry expression in the target cells was observed under a fluorescence microscope. mCherry expression was stable over time and still observed 30 days after transduction.

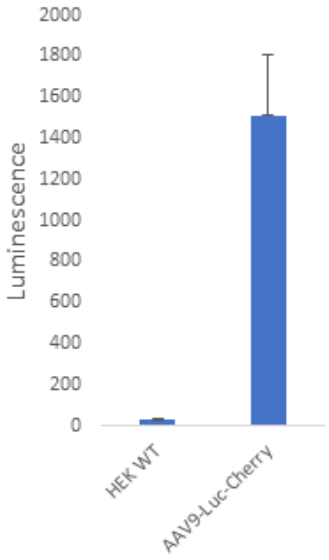

Figure 3. Luciferase activity of HEK293 cells transduced by AAV9 Luciferase-mCherry particles. 1 x 10^5 cells/well were transduced in a 6-well plate with AAV9 Luciferase-mCherry at an MOI of 2 x 10^4. After 72 hours of transduction, transduced cells or parental HEK293 cells were seeded in a 96-well plate at a density of 2 x 10^4 cells/well, and luciferase activity was measured using the ONE-Step™ luciferase assay system (BPS Bioscience #60690)

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*
AAV1 ZsGreen	78443	50 µl x 2
AAV2 ZsGreen	78444	50 µl x 2
AAV5 ZsGreen	78447	50 µl x 2
AAV8 ZsGreen	78449	50 µl x 2
AAV9 ZsGreen	78450	50 µl x 2
AAV1 Luciferase-mCherry	78470	50 µl x 2
AAV6 Luciferase-mCherry	78475	50 µl x 2
AAV9 Luciferase-mCherry	78477	50 µl x 2
AAV2 Luciferase-eGFP	78462	50 µl x 2
AAV8 Luciferase-eGFP	78467	50 µl x 2
AAV9 Luciferase-eGFP	78468	50 µl x 2