

### Description

Adeno-Associated Virus serotype 1 (AAV1) exhibits high homology with other AAV serotypes. AAV1 efficiently transduces muscle tissue, as determined by a region of the capsid protein VP1 (amino acids 350 to 430) which functions as a major determinant of tissue tropism.

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

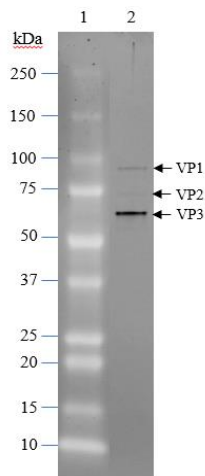
Wild-type AAV Serotype 1

### Formulation

AAV1 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 AAV1 Luciferase-mCherry particles.*

Staining of a 4-20% SDS-PAGE gel. The protein ladder is in lane 1, and  $2 \times 10^9$  VG (vector genome) of AAV1 is shown in lane 2. Additional lanes between 1 and 2 were removed from the figure for clarity. AAV viral proteins VP1, VP2, and VP3 are labeled.

**Titer**

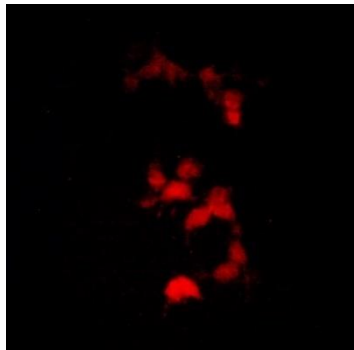
Two vials (50  $\mu$ l x 2) of AAV at a titer  $\geq 1 \times 10^{12}$  vector genomes/ml. The titer is determined by qPCR and will vary with each lot; the exact value will be provided with each shipment.

**Storage**

AAV is shipped with dry ice. For long-term storage, it is recommended to store AAV at  $-80^{\circ}\text{C}$ . Avoid repeated freeze-thaw cycles. Titters can drop significantly with each freeze-thaw cycle.

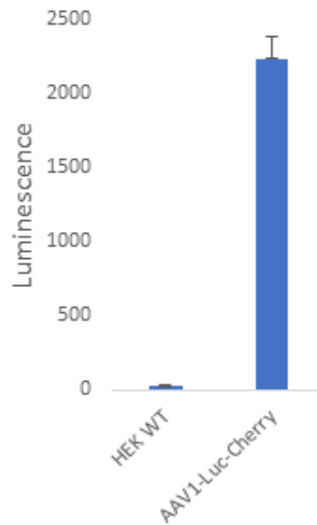
**Biosafety**

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 AAV1 Luciferase-mCherry particles.*

$1 \times 10^5$  cells/well were transduced in a 6-well plate with AAV1 Luciferase-mCherry at an MOI of  $2 \times 10^4$ . 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 AAV1 Luciferase-mCherry particles. 1 x 10<sup>5</sup> cells/well were transduced in a 6-well plate with AAV1 Luciferase-mCherry at an MOI of 2 x 10<sup>4</sup>. 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<sup>4</sup> cells/well, and luciferase activity was measured using the ONE-Step™ luciferase assay system (BPS Bioscience #60690)*

### Troubleshooting Guide

Visit [bpsbioscience.com/lentivirus-faq](https://bpsbioscience.com/lentivirus-faq) for detailed troubleshooting instructions. For all further questions, please email [support@bpsbioscience.com](mailto:support@bpsbioscience.com).

### Related Products

<i>Products</i>	<i>Catalog #</i>	<i>Size</i>
AAV1 ZsGreen	78443	50 µl x 2
AAV8 ZsGreen	78449	50 µl x 2
AAV9 ZsGreen	78450	50 µl x 2
AAV1 Luciferase-eGFP	78461	50 µl x 2
AAV3 Luciferase-eGFP	78463	50 µl x 2
AAV6 Luciferase-mCherry	78475	50 µl x 2
AAV8 Luciferase-mCherry	78476	50 µl x 2