

### Description

Adeno-Associated Virus serotype 2 (AAV2) is the best characterized AAV serotype. Nearly all recombinant AAV serotypes utilize the AAV2 inverted terminal repeats (ITRs). AAV2 requires the expression of Heparan Sulfate Proteoglycan (HSPG) on the surface of host cells for binding and internalization. Of nearly all the discovered AAV serotypes, AAV2 has the best transduction efficiency in cell culture and is the best tool for *in vitro* studies.

These AAV particles constitutively express the firefly (*Photinus pyralis*) luciferase and eGFP 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 eGFP 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 2

### Formulation

AAV 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.

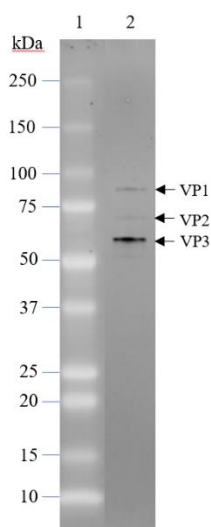


Figure 1. Purified AAV2 Luciferase-eGFP particles.

Staining of a 4-20% SDS-Page gel. The protein ladder is in lane 1, and  $2 \times 10^9$  GC (genome copy number) of AAV 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 labelled.

**Titer**

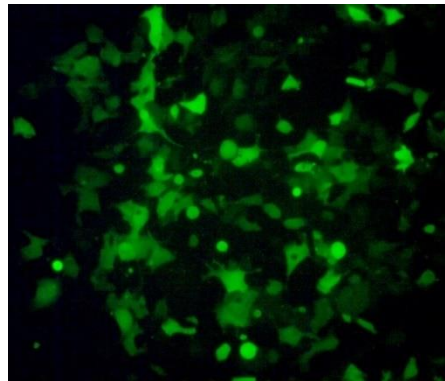
Two vials (50  $\mu$ l x 2) of AAV at a titer  $\geq 1 \times 10^{12}$  TU/ml. The titer is determined by qPCR and will vary with each lot; the exact value will be provided with each shipment.

**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. Titers can drop significantly with each freeze-thaw cycle.

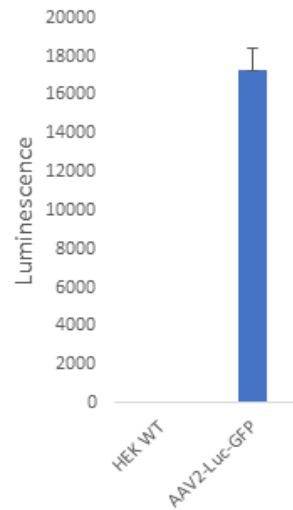
**Biosafety**

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 AAV2 Luciferase-eGFP particles.*

$1 \times 10^5$  cells were transduced in a 6-well plate with AAV2 Luciferase-eGFP particles at an MOI of  $2 \times 10^4$ . After 72 hours of transduction, eGFP expression in the target cells was observed under a fluorescence microscope. eGFP expression was stable over time and still observed 30 days after transduction.



**Figure 3.** Luciferase activity of HEK293 cells transduced by AAV2 Luciferase-eGFP particles.  $1 \times 10^5$  cells/well were transduced in a 6-well plate with AAV2 Luciferase-eGFP at an MOI of  $2 \times 10^4$ . After 72 hours of transduction, transduced cells or parental HEK293 cells were seeded in a 96-well plate at a density of  $2 \times 10^4$  cells/well, and luciferase activity was measured using the ONE-Step™ luciferase assay system (BPS Bioscience #60690).

### Troubleshooting Guide

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

### Related Products

Products	Catalog #	Size
AAV2 ZsGreen	78444	50 $\mu$ l x 2
AAV5 ZsGreen	78447	50 $\mu$ l x 2
AAV3 Luciferase-eGFP	78463	50 $\mu$ l x 2
AAV9 Luciferase-eGFP	78468	50 $\mu$ l x 2
AAV6 Luciferase-mCherry	78475	50 $\mu$ l x 2
AAV8 Luciferase-mCherry	78476	50 $\mu$ l x 2