

### Description

Adeno-Associated Virus Serotype 4 (AAV4) contains an expanded p5 promoter region compared to either AAV2 or AAV3. The AAV4 Rep gene product shows greater than 90% homology with the Rep products of AAV2 and AAV3. AAV4 can transduce human, monkey, and rat cells, and efficiently transduces type B astrocytes in the subventricular zone and glia overlying the rostral migratory stream neural tube.

These AAV particles constitutively express ZsGreen under a CMV promoter. ZsGreen is a human codon-optimized variant of the green fluorescent protein isolated from reef coral (*Zoanthus sp*). It has been engineered for higher expression in mammalian cells and is up to four times brighter than enhanced GFP (eGFP). ZsGreen expression and AAV transduction efficiency can easily be verified and optimized by fluorescence microscopy or flow cytometry. ZsGreen has an excitation wavelength of 493 nm and an emission wavelength of 505 nm.

### Application(s)

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

### Serotype

Wild-type AAV Serotype 4

### 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 AAV4 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.

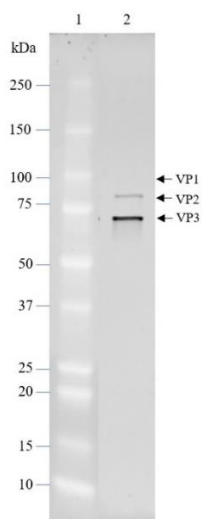


Figure 1. Purified AAV4 ZsGreen particles.

Staining of a 4-20% SDS-PAGE gel. The protein ladder is in lane 1, and  $2 \times 10^9$  VG (vector genome) of 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 labeled.

**Titer**

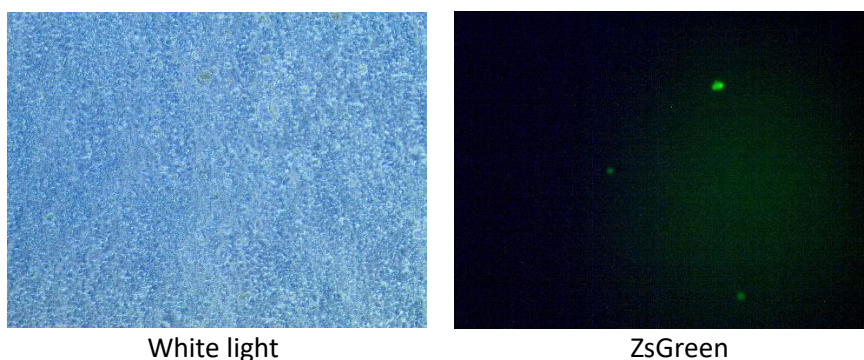
Two vials (50  $\mu$ l x 2) of AAV at a titer  $\geq 1 \times 10^{11}$  vector genomes/ml. The titer is determined by qPCR and will vary with each lot; the exact value will be provided with each shipment.

**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. 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 AAV4 ZsGreen particles.*

$1 \times 10^5$  cells were transduced in a 6-well plate with AAV4 ZsGreen particles at an MOI of  $2 \times 10^4$ . After 72 hours of transduction, ZsGreen expression in the target cells was observed under a fluorescence microscope. Low levels of positive clones were detected due to AAV4 transduction in HEK293 cells is being 0.1% efficient when compared to AAV2 transduction.

**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>
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