

## AAV2- GFP Control Virus

**CATALOG NUMBER:** AAV-302      **STORAGE:** -80°C; avoid repeat freeze/thaw cycles

**QUANTITY AND CONCENTRATION:** 50 µL,  $1 \times 10^{12}$  GC/mL in PBS/0.01% Pluronic F-68

### **Background**

Adeno-associated viruses (AAVs) are derived from defective parvoviruses, which depend on essential helper functions provided by other viruses, such as adenovirus and herpes virus, for efficient viral replication and propagation. AAV has no etiologic association with any known diseases and has been successfully used to establish efficient and long-term gene expression *in vivo* in a variety of tissues without significant cellular immune responses or toxicity.

AAV has a single-stranded DNA genome which consists of approximately 4.7 kb. All characterized AAV serotypes share three key features, including two copies of AAV terminal repeats (ITRs), one *rep* region and one *cap* region. In the AAV Helper-Free System, most of the adenovirus gene products required for the production of infective AAV particles are supplied on the plasmid pHelper (i.e. E2A, E4, and VA RNA genes) that is co-transfected into cells with human AAV vector DNA. The remaining adenoviral gene product is supplied by the 293 host cells, which stably express the adenovirus E1 gene. The *rep* and *cap* genes have been removed from the viral vector that contains AAV-2 ITRs and are supplied *in trans* on the plasmid pAAV-RC. Variations on capsid protein confer serotypes of AAV to have different tropism. The expression of the GFP reporter in the provided AAV is driven by a CMV promoter.

### **In Vitro Infection Methods**

When designing AAV experiments, we recommend using different serotypes of a reporter virus such as AAV-GFP to determine optimal serotype for infection of your cell type. (AAV infection is cell type dependent; the required MOI for different cell types needs to be determined.)

1. Seed target cells in a 24-well or 12-well plate one day before infection.
2. Infect cells with recombinant AAV at desired MOI.

*Note: For cells that are readily infectible, we recommend starting at 5,000 to 10,000 GC/cell.*

3. (Optional) Coinfect cells with wild type Ad5 at MOI of 1.
4. After 48 to 72 hrs, perform appropriate assays to determine positive cells.

### **Safety Considerations**

Remember that you will be working with samples containing infectious virus. Follow the recommended NIH guidelines for all materials containing BSL-2 organisms. Precautions must be taken to avoid direct contact with viral supernatants.

### **References**

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### **Recent Product Citations**

1. Liao, Z.X. et al. (2017). Magnetically Guided Viral Transduction of Gene-Based Sensitization for Localized Photodynamic Therapy To Overcome Multidrug Resistance in Breast Cancer Cells. *Bioconjug. Chem.* **28(6)**:1702-1708.
2. Crawford, D.C. et al. (2017). Selective molecular impairment of spontaneous neurotransmission modulates synaptic efficacy. *Nat Commun.* **8**:14436. doi: 10.1038/ncomms14436.
3. Leaderbrand, K. et al. (2016). Muscarinic acetylcholine receptors act in synergy to facilitate learning and memory. *Learn. Mem.* **23**:631-638.

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