

Biosafety of AAV vectors and particles

Background:

Adeno-associated virus (AAV) is a small, non-enveloped virus with a single stranded DNA genome. This virus is commonly used as an efficient vehicle to mediate DNA delivery into mammalian cells, both in vitro and in vivo. Although unrelated to Adenovirus, AAV was named such because it was discovered as a contaminant in Adenovirus preparations. AAV is replication-defective and requires the presence of a helper virus (typically Adenovirus or Herpesvirus) to replicate. Wild type AAV infects humans and other primate species but is not known to cause disease, and are considered nonpathogenic. Recombinant AAV (rAAV) vectors infect a wide range of mammalian cells and are advantageous due to their efficient gene transfer, transient or stable transgene expression, and lack of induction of strong immune responses.

Biosafety:

Despite the safety features discussed, AAV particles produced with OriGene's AAV system can still pose some biohazard risks since the particles can transduce primary human cells. All AAV particles provided by OriGene are prepared from HEK293 cells under the **BSL-2** conditions.

In order to control the risks with OriGene's AAV particles, **we highly recommend that you treat all AAV particles as Biosafety Level 2 (BSL-2) organisms and strictly follow the published BSL-2 guidelines with proper waste decontamination.** Furthermore, AAV carrying potential harmful or toxic genes (*e.g.* activated oncogenes) requires higher levels of protection such as BSL-2 enhanced containment.

For more information on biosafety levels, please read the NIH Biosafety Guidelines.