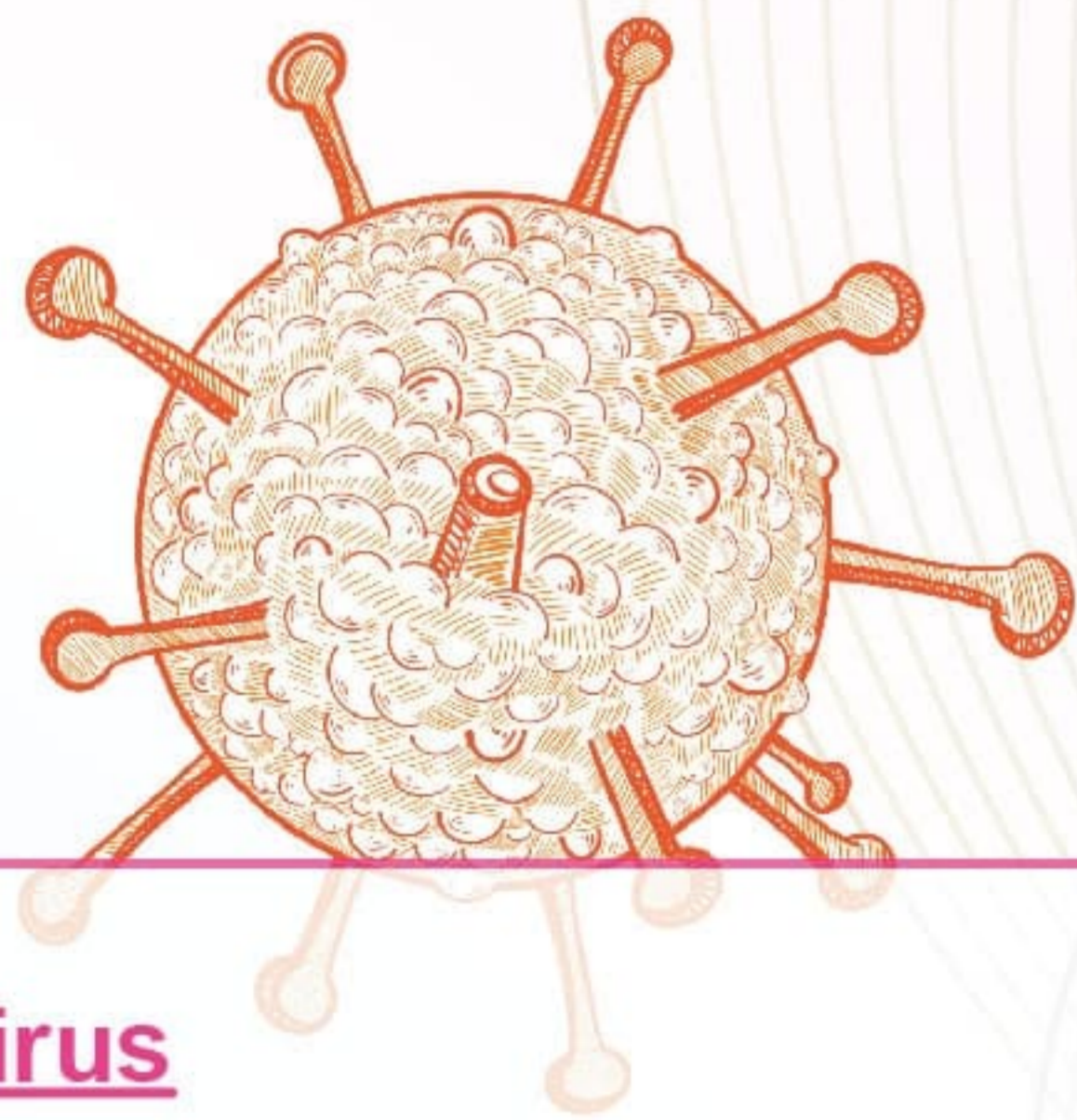# Viruses for Gene Delivery
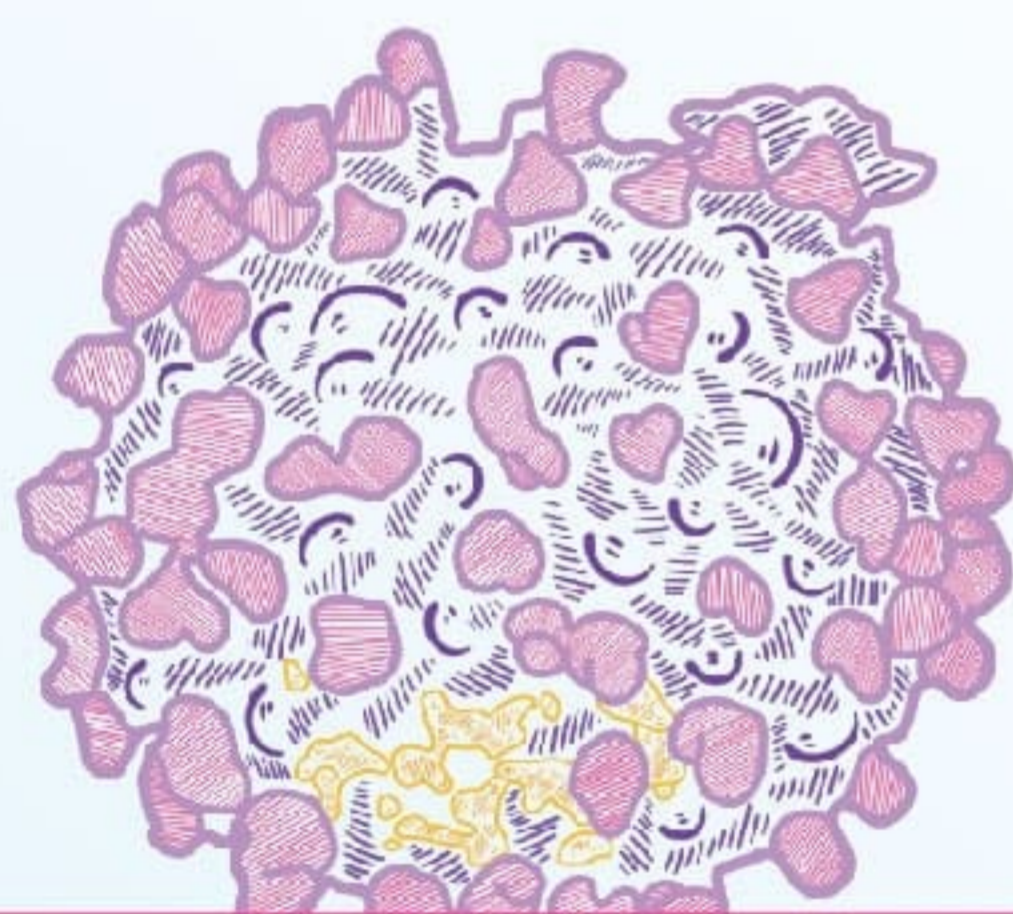
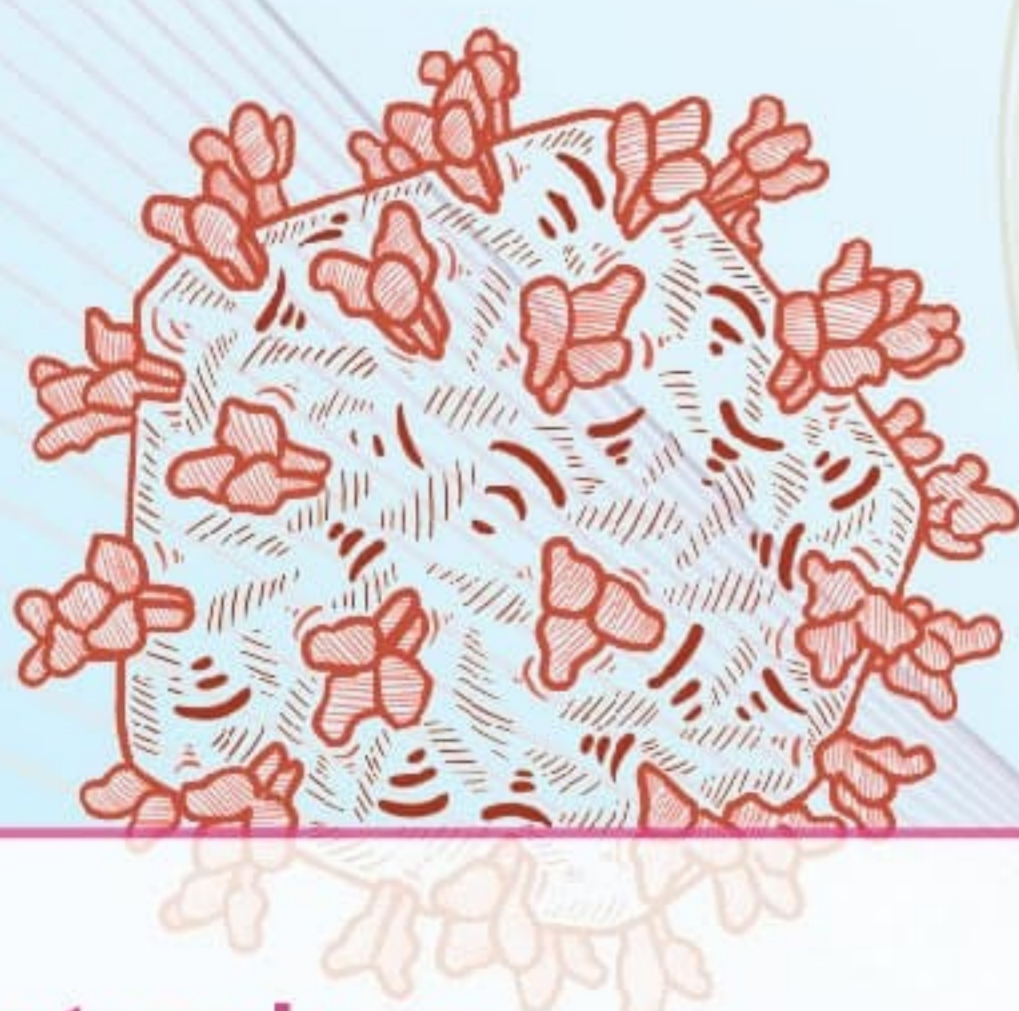## Viruses with Genome Integration

(Insert size <10 kb)

Lentivirus

- 6.4 kb carrying capacity
- Low immunogenicity
- Used in vitro and in vivo
- Well-known for stable integration of shRNAs and treatment of β-thalassemia

MMLV Retrovirus

- 5.5 kb carrying capacity
- Low immunogenicity
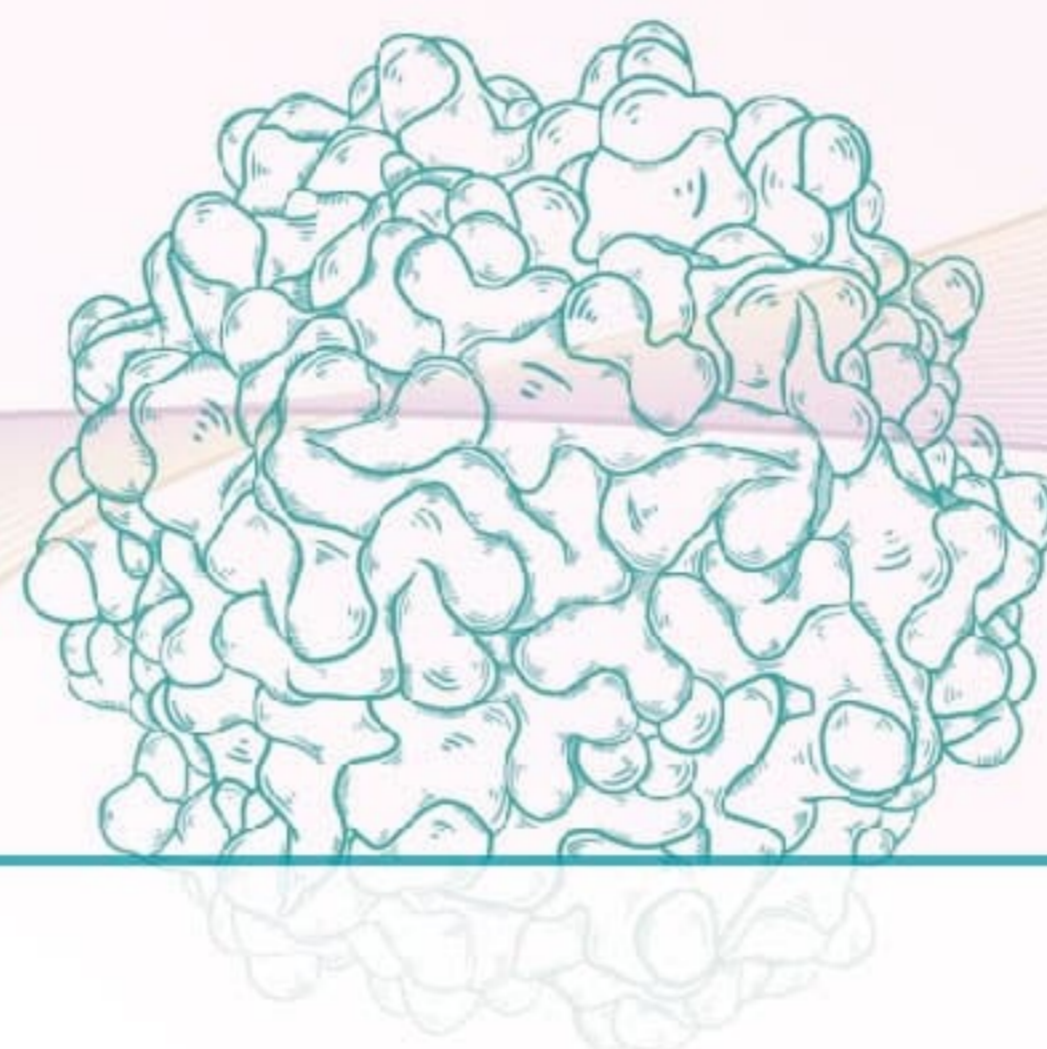- Used in vitro and in vivo
- Well-known for generation of iPSCs

MSCV Retrovirus

- 6.1 kb carrying capacity
- Low immunogenicity
- Used in vitro and in vivo
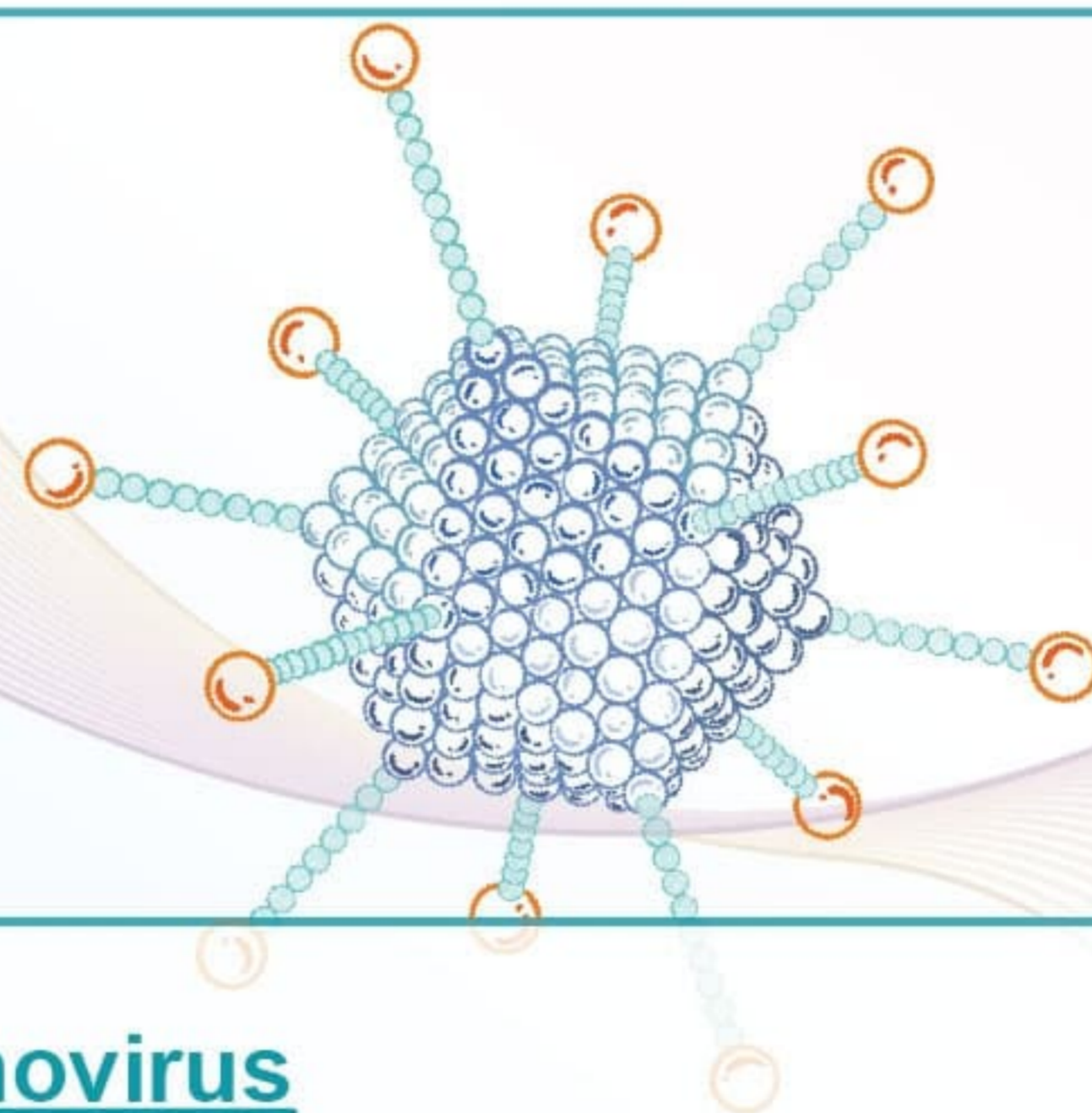- Well-known for gene transfer to ES, EC, and HS cells

Viruses without Genome Integration

(Insert size <10 kb)

AAV

- 4.2 kb carrying capacity
- Very low immunogenicity
- Primarily used in vivo
- Well-known for gene therapy (e.g. for lipoprotein lipase deficiency) and tissue-specific serotypes

Adenovirus

- 7.5 kb carrying capacity
  - Chimeric: 8.2 kb, Gutless: 33 kb
- High immunogenicity
- Primarily used in vivo
- Well-known for gene therapy clinical trials and vaccines

(Insert size >10 kb)

Vesicular Stomatitis Virus (VSV)

- 11 kb carrying capacity
- High immunogenicity
- Used in vitro and in vivo
- Well-known for studying viral entry and vaccine development
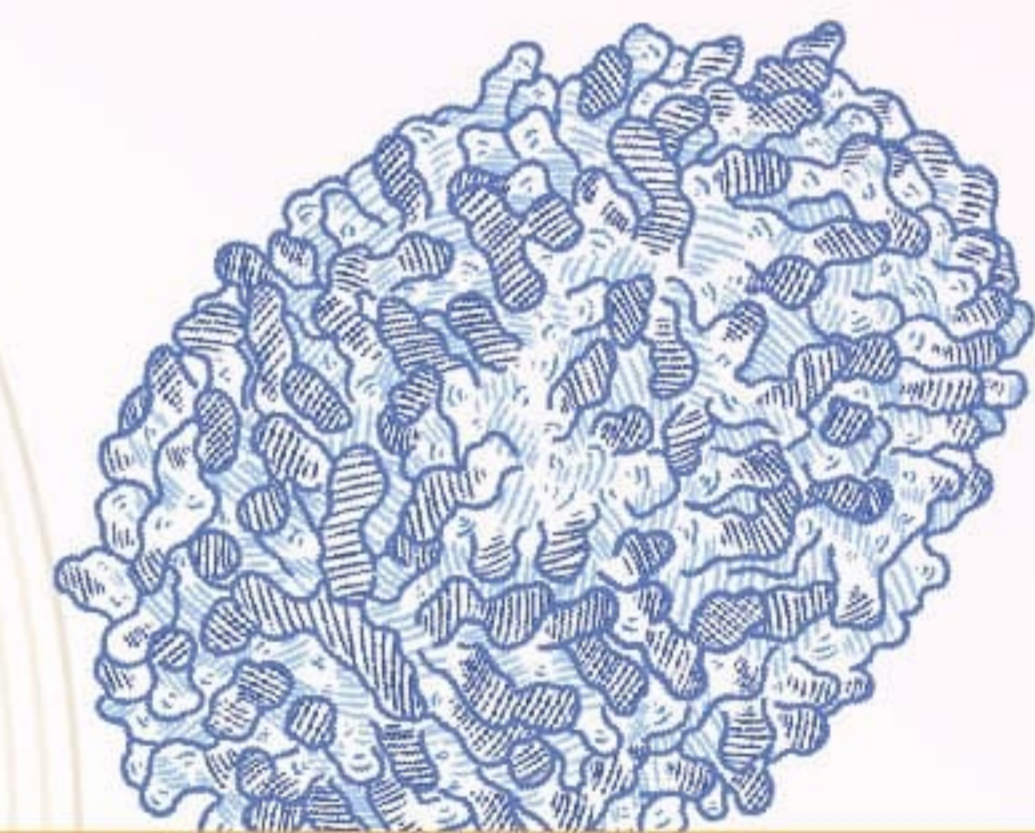
Vaccinia Virus (VACV)

- 30 kb carrying capacity
- High immunogenicity
- Used in vitro and in vivo
- Well-known for use as oncolytic virus and vaccine development

Herpes Simplex Virus (HSV)

- 150 kb carrying capacity
- High immunogenicity
- Used in vitro and in vivo
- Well-known for use as oncolytic virus and delivery to nervous system

VectorBuilder

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