CLAIMS

1. A replication-defective adeno-associated virus (AAV) comprising:
   (a) a correction genome comprising:
      (i) an editing element selected from an internucleotide bond or a nucleotide sequence for integration into a target locus of a chromosome in a cell,
      (ii) a 5' homologous arm nucleotide sequence 5' of the editing element, having homology to a 5' region of the mammalian chromosome relative to the target locus, and
      (iii) a 3' homologous arm nucleotide sequence 3' of the editing element, having homology to a 3 ' region of the mammalian chromosome relative to the target locus; and
   (b) an AAV capsid comprising an AAV capsid protein comprising:
      (i) the amino acid sequence of amino acids 203-736 of SEQ ID NO: 2, 3, 4, 6, 7, 10, 11, 12, 13, 15, 16, or 17,
      (ii) the amino acid sequence of amino acids 138-736 of SEQ ID NO: 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 15, 16, or 17, and/or
      (iii) the amino acid sequence of amino acids 1-736 of SEQ ID NO: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, or 17.

2. The AAV of claim 1, wherein the editing element comprises a gene or fragment thereof, a coding sequence of a gene, an exon, an intron, a 5' untranslated region (UTR), a 3 ' UTR, a promoter, a splice donor, a splice acceptor, a sequence corresponding to a non-coding RNA, an insulator, or a combination thereof.

3. The AAV of claim 1 or claim 2, wherein the editing element comprises a coding sequence of a gene.

4. The AAV of any one of claims 1 to 3, wherein the editing element comprises a coding sequence of a gene operably linked to an exogenous promoter.

5. The AAV of any one of claims 1 to 4, wherein the editing element further comprises a polyadenylation sequence operably linked to the coding sequence.

6. The AAV of claim 1, wherein the editing element is a nucleotide sequence comprising an insertion, deletion, or substitution relative to the target locus of the chromosome.

7. The AAV of any one of claims 1 to 6, wherein the target locus comprises one or more mutations relative to the corresponding locus in a wild type chromosome.

8. The AAV of claim 7, wherein the target locus comprises an amorphic mutation, a neomorphic mutation, antimorphic mutation, an autosomal dominant mutation, an autosomal recessive mutation, or a combination thereof.

9. The AAV of claim 7, wherein the target locus is selected from a promoter, an enhancer, a signal sequence, an intron, an exon, a splice donor site, a splice acceptor site, an internal ribosome entry site, an inverted exon, an insulator, a gene or a fragment thereof, a chromosomal inversion, and a chromosomal translocation within the chromosome.

10. The AAV of any one of claims 1 to 9, wherein each of the 5′ and 3′ homologous arm nucleotide sequences independently has a nucleotide length of about 50 to 2000 nucleotides.

11. The AAV of any one of claims 1 to 10, wherein the target locus is an intron.

12. The AAV of any one of claims 1 to 11, wherein the correction genome comprises a 5′ inverted terminal repeat (5′ ITR) nucleotide sequence 5′ of the 5′ homologous arm nucleotide sequence, and a 3′ inverted terminal repeat (3′ ITR) nucleotide sequence 3′ of the 3′ homologous arm nucleotide sequence.

13. The AAV of claim 12, wherein:

the 5′ ITR nucleotide sequence has at least 95% sequence identity to SEQ ID NO:36, and the 3′ ITR nucleotide sequence has at least 95% sequence identity to SEQ ID NO:37; or

the 5′ ITR nucleotide sequence has at least 95% sequence identity to SEQ ID NO:38, and the 3′ ITR nucleotide sequence has at least 95% sequence identity to SEQ ID NO:39.

14. The AAV of any one of claims 1 to 13, wherein the correction genome is a single stranded genome.

15. A packaging system for recombinant preparation of an AAV, wherein the packaging system comprises

(a) a Rep nucleotide sequence encoding one or more AAV Rep proteins;

(b) a Cap nucleotide sequence encoding an AAV capsid protein as set forth in any one of claims 1 to 14; and

(c) a correction genome as set forth in any one of claims 1 to 14,

wherein the packaging system is operative in a cell for enclosing the correction genome in the capsid to form the AAV.

16. An *in vitro* method for recombinant preparation of an AAV, the method comprising introducing the packaging system of claim 15 into a cell under conditions operative for enclosing the correction genome in the capsid to form the AAV.

17. An *ex vivo* method for editing a target locus of a genome in a cell, the method comprising transducing the cell with the replication-defective adeno-associated virus (AAV) of any one of claims 1 to 14, wherein the cell is transduced without co-transducing or co-administering an exogenous nuclease or a nucleotide sequence that encodes an exogenous nuclease.

18. The method of claim 17, wherein the cell is in a mammalian subject and the AAV is administered to the subject in an amount effective to transduce the cell in the subject.

19. The method of claim 17 or claim 18, wherein the cell is a mammalian cell.

20. The method of claim 19, wherein the mammalian cell is selected from the group consisting of a myoblast, an endothelial cell, a liver cell, a fibroblast, a breast cell, a lymphocyte, and a retinal cell.

21. The method of claim 18, wherein the cell is a stem cell.

22. The method of claim 21, wherein the stem cell is selected from the group consisting of a hematopoietic stem cell, a cord blood stem cell, a peripheral blood stem cell, and a $CD34^+$ stem cell.

23. Use of the AAV of any one of claims 1 to 14 in the manufacture of a medicament for treating a disease or disorder.