WHAT IS CLAIMED IS:

1. An adeno-associated virus (AAV) capsid polypeptide, wherein the AAV capsid polypeptide has an amino acid sequence comprising any one of SEQ ID NOs: 2-5.

2. An AAV capsid polypeptide, wherein the AAV capsid polypeptide has an amino acid sequence comprising SEQ ID NO: 1 or SEQ ID NO: 10, and further comprises an amino acid sequence comprising any one of SEQ ID NOs: 2-5 (i) located between amino acid residues corresponding to positions 587 and 588 of SEQ ID NO: 1 or SEQ ID NO: 10; or (ii) replacing any or all amino acid residues corresponding to positions 585 to 590 of SEQ ID NO: 1 or SEQ ID NO: 10.

3. A composition comprising a particle comprising (i) a capsid with an amino acid sequence according to claim 1 or claim 2; and (ii) an exogenous nucleic acid that encodes an RNA or polypeptide; and (iii) a pharmaceutically acceptable excipient.

4. An AAV capsid for use in delivering an exogenous nucleic acid sequence to a retinal cell within a mammal, wherein an AAV particle comprising the AAV capsid is to be administered to the eye of the mammal, which eye comprises the retinal cell, wherein the particle comprises (i) an AAV capsid polypeptide with an amino acid sequence that comprises any one of SEQ ID NOs: 2-5, and (ii) the exogenous nucleic acid sequence, and wherein the AAV capsid infects the retinal cell, thereby delivering the exogenous nucleic acid sequence to the retinal cell.

5. The AAV capsid for use of claim 4, wherein the capsid polypeptide has an amino acid sequence comprising SEQ ID NO: 1 or SEQ ID NO: 10 except that (i) an amino acid sequence comprising any one of SEQ ID NOs: 2-5 is located between amino acid residues corresponding to positions 587 and 588 of SEQ ID NO: 1 or SEQ ID NO: 10, or (ii) the amino acids corresponding to any or all of positions 585 to 590 of SEQ ID NO: 1 or SEQ ID NO: 10 are replaced with an amino acid sequence comprising any one of SEQ ID NOs: 2-5.

6. The AAV capsid for use of claim 4 or claim 5, wherein the mammal has a retinal condition, and wherein the AAV particle infects the retinal cells in the eye and drives

expression of the exogenous nucleic acid sequence within the retinal cells, thereby treating the retinal condition.

7. The AAV capsid for use of claim 6, wherein the mammal is a human.

8. The AAV capsid for use of claim 6 or claim 7, wherein the retinal condition is selected from the group consisting of: LCA, OCA1, retinitis pigmentosa, rod/cone dystrophy, cone dystrophy, Stargardt Disease, Usher syndrome, XLRP, and XLRS.

9. An adeno-associated virus (AAV) capsid polypeptide, wherein the capsid polypeptide has an amino acid sequence comprising SEQ ID NO: 1 or SEQ ID NO: 10, and further comprises an amino acid sequence insert according to Formula A, wherein the insert is located (i) between amino acid residues corresponding to positions 587 and 588 of SEQ ID NO: 1 or SEQ ID NO: 10, or (ii) replaces any or all of the amino acid residues corresponding to positions 585 to 590 of SEQ ID NO: 1 or SEQ ID NO: 10; and wherein Formula A is:

-L1-EGSGRN (SEQ ID NO:2)-L2-,

wherein L1 and L2 are each independently optional amino acid linkers having zero, one, two, or three amino acids.

10. The capsid polypeptide of claim 9, wherein L1 is one amino acid X1, optionally wherein X1 is selected from the group of amino acid residues consisting of A, V, I, and L; or wherein L1 is two amino acids X2-X1, optionally wherein X1 is selected from the group of amino acid residues consisting of A, V, I, and L, and optionally wherein X2 is selected from the group of amino acid residues consisting of A, V, I, and L; or wherein L1 is three amino acids X3-X2-X1, optionally wherein X3 is selected from the group of amino acid residues consisting of A, V, I, and L; or wherein L1 is absent.

11. The capsid polypeptide of claim 9 or claim 10, wherein L2 is one amino acid Z1, optionally wherein Z1 is selected from the group of amino acid residues consisting of A, V, I, and L; or wherein L2 is two amino acids Z1-Z2, optionally wherein Z2 is selected from the group of amino acid residues consisting of A, V, I, and L; or wherein L2 is three amino acids Z1-Z2-Z3, optionally wherein Z3 is selected from the group of amino acid residues consisting of A, V, I, and L; or wherein L2 is absent.

12. Use of an AAV particle in the manufacture of a medicament for treating a retinal disorder in a patient in need thereof, wherein an effective amount of the AAV particle is to be administered to the patient's eye, wherein the AAV particle comprises an AAV capsid polypeptide and an exogenous nucleic acid sequence, and wherein the AAV capsid polypeptide has an amino acid sequence comprising an amino acid insert represented by Formula A as follows: -L1-EGSGRN (SEQ ID NO: 2)-L2-, wherein L1 and L2 are each independently optional amino acid linkers having zero, one, two, or three amino acids.

13. The use of claim 12, wherein the administering is to be intravitreal administration.

14. The use of claim 12 or claim 13, wherein the retinal disorder is a disease selected from the group consisting of: LCA, OCA1, retinitis pigmentosa, rod/cone dystrophy, cone dystrophy, Stargardt Disease, Usher syndrome, XLRP, and XLRS.

15. A composition comprising an AAV particle comprising a capsid having an amino acid sequence comprising SEQ ID NO: 1 or SEQ ID NO: 10, and further comprising an amino acid sequence insert according to Formula A, wherein the insert is located between amino acid residues corresponding to positions 587 and 588 of SEQ ID NO: 1 or SEQ ID NO: 10 and wherein Formula A is -L1-EGSGRN (SEQ ID NO: 2)-L2-, wherein L1 and L2 are each independently optional amino acid linkers having zero, one, two, or three amino acids.

16. An AAV particle comprising a capsid polypeptide having an amino acid sequence comprising SEQ ID NO: 1 or SEQ ID NO: 10, wherein a sequence of LAEGSGRNA (SEQ ID NO: 5) is located between amino acid residues corresponding to positions 587 and 588 of SEQ ID NO: 1 or SEQ ID NO: 10.

17. An AAV vector comprising a polynucleotide encoding an AAV capsid polypeptide, wherein the capsid polypeptide has an amino acid sequence comprising any one of SEQ ID NOs: 2-5.

18. The AAV vector of claim 17, wherein the AAV capsid polypeptide has an amino acid sequence comprising SEQ ID NO: 1 or SEQ ID NO: 10, wherein the sequence of any one of SEQ ID NOs: 2-5 is located between amino acid residues corresponding to positions 587 and 588 of SEQ ID NO: 1 or SEQ ID NO: 10.

19. The AAV vector of claim 17, wherein the capsid polypeptide comprises an amino acid sequence of SEQ ID NO: 1 or SEQ ID NO: 10, and further comprises the amino acid sequence of any one of SEQ ID NOs: 2-5 between amino acid residues corresponding to positions 587 and 588 of SEQ ID NO: 1 or SEQ ID NO: 10.

20. The AAV vector of claim 17, wherein the vector is used in the manufacture of an AAV particle.

21. A mammalian cell comprising the AAV vector of any one of claims 16-20.

22. A mammalian cell comprising a first AAV vector according to any one of claims 16-21, and a second AAV vector comprising an exogenous polynucleotide that encodes an RNA or a polypeptide.

23. An AAV particle produced using a mammalian cell of claim 21 or claim 22 comprising an AAV vector.

24. An adeno-associated virus (AAV) capsid polypeptide, wherein the AAV capsid polypeptide comprises an amino acid sequence selected from any one of SEQ ID NOs: 2, 3, 4, or 5, wherein the amino acid sequence of the any one of SEQ ID NOs: 2-5 is located in the capsid polypeptide and between residues corresponding to positions 587 and 588 of SEQ ID NO: 1.