CLAIMS

1. Use of a recombinant adeno-associated virus (rAAV) virion in the manufacture of a medicament for the treatment of an ocular condition in a subject in need thereof, wherein the rAAV virion comprises an AAV capsid and an expression cassette, wherein the expression cassette comprises a polynucleotide encoding a neurotrophic factor operatively linked to a promoter, wherein the neurotrophic factor is selected from a Nerve Growth Factor (NGF) protein and Glial Derived Neurotrophic Factor (GDNF) protein, and wherein the medicament is to be administered to at least one eye of the subject or to at least one lacrimal gland of the eye of the subject.

2. The use of claim 1, wherein the medicament is to be administered to a lacrimal gland of the subject and cells within the lacrimal gland are to be transduced by the rAAV virion present in the medicament, and wherein the lacrimal gland is the main lacrimal gland or any one of the Wolfring's glands or the Krause's glands of the subject.

3. The use of claim 2, wherein the transduced cells within the lacrimal gland express an effective amount of the neurotrophic factor into the tear film and optionally onto the ocular surface of the subject.

4. The use of claim 1, wherein the polynucleotide encoding the NGF protein comprises a sequence that shares at least 95% identity to SEQ ID NO: 2, and wherein the polynucleotide encoding the NGF protein comprises SEQ ID NO: 2.

5. The use of claim 1, wherein the NGF protein comprises a sequence that shares at least 95% identity to SEQ ID NO: 1, and wherein the NGF protein comprises SEQ ID NO: 1.

6. The use of claim 1, wherein the polynucleotide encoding the GDNF protein comprises a sequence that shares at least 95% identity to SEQ ID NO: 4, and wherein the polynucleotide encoding the GDNF protein comprises SEQ ID NO: 4.

7. The use of claim 1, wherein the GDNF protein comprises a sequence that shares at least 95% identity to SEQ ID NO: 3, and wherein the GDNF protein comprises SEQ ID NO: 3.

8. The use of any one of claims 1 to 7, wherein the AAV capsid shares at least 95%, 98%, or 100% identity to AAV2 VP1 (SEQ ID NO: 6), AAV2 VP3 (SEQ ID NO: 8), AAV5 (SEQ ID NO: 10), AAV8 (SEQ ID NO: 12), or AAV9 (SEQ ID NO: 14).

9. The use of any one of claims 1 to 8, wherein the promoter is a CAG promoter (SEQ ID NO: 5).

10. The use of any one of claims 1 to 9, wherein the ocular condition is a chemical burn of the ocular surface, corneal wound, corneal ulcer, persistent epithelial defect, dry eye disease, neurotrophic keratitis, herpes simplex viral infection of the trigeminal nerve and/or the eye, varicella zoster virus infection of the trigeminal nerve and/or the eye, or diabetic complications of the corneal nerves.

11. The use of any one of claims 1 to 10, wherein one or more symptoms of the ocular condition are reduced compared to the symptoms of the ocular condition before the medicament is to be administered, wherein one or more symptoms of the ocular condition are reduced compared to the symptoms of the ocular condition in an untreated control subject, and wherein one or more symptoms of the ocular condition are reduced compared to the symptoms of the ocular condition in a contralateral eye.

12. A recombinant adeno-associated virus (rAAV) virion, comprising:

an AAV capsid; and

an expression cassette,

wherein the expression cassette comprises a polynucleotide encoding a neurotrophic factor operatively linked to a promoter, wherein the neurotrophic factor is selected from a Nerve Growth Factor (NGF) protein and Glial Derived Neurotrophic Factor (GDNF) protein.

13. The rAAV virion of claim 12, wherein the polynucleotide encoding the NGF protein comprises a sequence that shares at least 95% identity to SEQ ID NO: 2 or SEQ ID NO: 17, and wherein the polynucleotide encoding the NGF protein comprises SEQ ID NO: 2 or SEQ ID NO: 17.

14. The rAAV virion of claim 12, wherein the NGF protein comprises a sequence that shares at least 95% identity to SEQ ID NO: 1, and wherein the NGF protein comprises SEQ ID NO: 1.

15. The rAAV virion of claim 12, wherein the polynucleotide encoding the GDNF protein comprises a sequence that shares at least 95% identity to SEQ ID NO: 4 or SEQ ID NO: 18, and wherein the polynucleotide encoding the GDNF protein comprises SEQ ID NO: 4 or SEQ ID NO: 18.

16. The rAAV virion of claim 12, wherein the GDNF protein comprises a sequence that shares at least 95% identity to SEQ ID NO: 3, and wherein the GDNF protein comprises SEQ ID NO: 3.

17. The rAAV virion of any one of claims 12 to 16, wherein the AAV capsid comprises a VP3 that shares at least 95%, 98%, or 100% identity to AAV2 VP1 (SEQ ID NO: 6), AAV2 VP3 (SEQ ID NO: 8), AAV5 (SEQ ID NO: 10), AAV8 (SEQ ID NO: 12), or AAV9 (SEQ ID NO: 14).

18. The rAAV virion of any one of claims 12 to 17, wherein the promoter is a CAG promoter (SEQ ID NO: 5) or a CMV promoter (SEQ ID NO: 16).

19. The rAAV virion of claim 12, wherein the expression cassette comprises a sequence that shares at least 90%, 95%, 96%, 97%, 98%, 99%, or 100% identity to SEQ ID NO: 23, wherein the expression cassette comprises a sequence that shares at least 90%, 95%, 96%, 97%, 98%, 99%, or 100% identity to SEQ ID NO: 24, or wherein the expression cassette comprises a sequence that shares at least 90%, 95%, 96%, 97%, 98%, 99%, or 100% identity to SEQ ID NO: 25.

20. A recombinant adeno-associated virus (rAAV) virion comprising an expression cassette comprising a polynucleotide of SEQ ID NO: 25.

21. The rAAV of claim 20, wherein the rAAV comprises an AAV capsid.

22. The rAAV of claim 21, wherein the AAV capsid shares at least 95%, 98%, or 100% identity to AAV2 VP1 (SEQ ID NO: 6), AAV2 VP3 (SEQ ID NO: 8), AAV5 (SEQ ID NO: 10), AAV8 (SEQ ID NO: 12), or AAV9 (SEQ ID NO: 14).

23. A composition comprising a rAAV virion, wherein the rAAV virion comprises:

(a) an AAV capsid, and

(b) an expression cassette, wherein the expression cassette comprises a polynucleotide encoding a neurotrophic factor operatively linked to a promoter, wherein the neurotrophic factor is selected from a Nerve Growth Factor (NGF) protein and Glial Derived Neurotrophic Factor (GDNF) protein,

wherein the expression cassette comprises a polynucleotide sharing at least 95% identity to SEQ ID NO: 2 or SEQ ID NO: 17, and wherein the polynucleotide is linked to a promoter, and wherein the expression cassette comprises a polynucleotide sharing at least 95% identity to SEQ ID NO: 4 or SEQ ID NO: 18, and wherein the polynucleotide is linked to a promoter.

24. The composition comprising a rAAV virion of claim 23, wherein the rAAV virion comprises:

(a) an AAV2, AAV5, AAV8, or AAV9 capsid, and

(b) an expression cassette, wherein the expression cassette comprises a polynucleotide sharing at least 95% identity to SEQ ID NO: 2 or SEQ ID NO: 17, and wherein the polynucleotide is linked to a promoter.

25. The composition comprising a rAAV virion of claim 23, wherein the rAAV virion comprises:

(a) an AAV2, AAV5, AAV8, or AAV9 capsid, and

(b) an expression cassette, wherein the expression cassette comprises a polynucleotide sharing at least 95% identity to SEQ ID NO: 4 or SEQ ID NO: 18, and wherein the polynucleotide is linked to a promoter.

26. The composition of any one of claims 23-25, wherein the AAV capsid shares at least 95%, 98%, or 100% identity to AAV2 VP1 (SEQ ID NO: 6), AAV2 VP3 (SEQ ID NO: 8), AAV5 (SEQ ID NO: 10), AAV8 (SEQ ID NO: 12), or AAV9 (SEQ ID NO: 14).

27. The composition of any one of claims 23-25, wherein the AAV capsid is AAV2, AAV5, or AAV9.

28. The composition comprising a rAAV virion of claim 23, wherein the rAAV virion comprises:

(a) an AAV2 capsid, and

(b) an expression cassette, wherein the expression cassette comprises a polynucleotide sharing at least 95% identity to SEQ ID NO: 25.

29. The composition comprising a rAAV virion of claim 23, wherein the rAAV virion comprises:

(a) an AAV5 capsid, and

(b) an expression cassette, wherein the expression cassette comprises a polynucleotide sharing at least 95% identity to SEQ ID NO: 25.

30. The composition comprising a rAAV virion of claim 23, wherein the rAAV virion comprises:

(a) an AAV9 capsid, and

(b) an expression cassette, wherein the expression cassette comprises a polynucleotide sharing at least 95% identity to SEQ ID NO: 25.

31. A pharmaceutical composition comprising the rAAV virion of any one of claims 14 to 26, or the composition of any one of claims 23-30, and a pharmaceutically acceptable carrier.

32. The pharmaceutical composition of claim 31, wherein the composition comprises 1×10^7 to 1×10^{14} genome copies per milliliter of the rAAV virion, and wherein the composition comprises 1×10^{12} to 6.2×10^{12} genome copies per milliliter of the rAAV virion.

33. The pharmaceutical composition of any one of claims 31-32, wherein the composition is formulated for administration into the lacrimal gland or onto the ocular surface.

34. The pharmaceutical composition of any one of claims 31-33, wherein the pharmaceutical composition is formulated for use, or adaptable for use, in the treatment of an ocular disease, disorder, or condition.

35. Use of the rAAV virion of any one of claims 12 to 22, the composition of any one of claims 23-30, or the pharmaceutical composition of any one of claims 31 to 34, in the manufacture of a medicament for the treatment of an ocular condition in a subject in need thereof.

36. A kit comprising the rAAV virion of any one of claims 12-22, the composition of any one of claims 23-30, or the pharmaceutical composition of any one of claims 31 to 34, and instructions for the treatment or delay in progression of an ocular condition in a subject in need thereof.