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, 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 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 any one of claims 1 to 3, wherein the neurotrophic factor is a Nerve Growth Factor (NGF) protein.

5. The use of claim 4, 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.

6. The use of claim 4, 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.

7. The use of any one of claims 1 to 3, wherein the neurotrophic factor is a Glial Derived Neurotrophic Factor (GDNF) protein.

8. The use of claim 7, 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.

9. The use of claim 7, 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.

10. The use of any one of claims 1 to 9, 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).

11. The use of any one of claims 1 to 10, wherein the promoter is a CAG promoter (SEQ ID NO: 5).

12. The use of any one of claims 1 to 11, 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.

13. The use of any one of claims 1 to 12, 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.

14. 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.

15. The rAAV virion of claim 14, wherein the neurotrophic factor is a Nerve Growth Factor (NGF) protein.

16. The rAAV virion of claim 15, 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.

17. The rAAV virion of claim 15, 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.

18. The rAAV virion of claim 14, wherein the neurotrophic factor is a Glial Derived Neurotrophic Factor (GDNF) protein.

19. The rAAV virion of claim 18, 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.

20. The rAAV virion of claim 18, 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.

21. The rAAV virion of any one of claims 14 to 20, 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).

22. The rAAV virion of any one of claims 14 to 21, wherein the promoter is a CAG promoter (SEQ ID NO: 5) or a CMV promoter (SEQ ID NO: 16).

23. The rAAV virion of claim 14, 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, and 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.

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

25. The rAAV of claim 24, wherein the rAAV comprises an AAV capsid.

26. The rAAV of claim 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. A composition comprising an rAAV virion, wherein the rAAV virion comprises:

(a) an AAV 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.

28. A composition comprising an rAAV virion, wherein the rAAV virion comprises:

(a) an AAV 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.

29. A composition comprising an rAAV virion, 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.

30. A composition comprising an rAAV virion, 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.

31. The composition of any one of claims 27-30, 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).

32. The composition of any one of claims 27-30, wherein the AAV capsid is AAV2, AAV5, or AAV9.

33. A composition comprising an rAAV virion, 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.

34. A composition comprising an rAAV virion, 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.

35. A composition comprising an rAAV virion, 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.

36. A pharmaceutical composition comprising the rAAV virion of any one of claims 14 to 26, or the composition of any one of claims 27-35, and a pharmaceutically acceptable carrier.

37. The pharmaceutical composition of claim 36, wherein the composition comprises about 1 x 10^7 to about 1 x 10^{14} genome copies per milliliter of the rAAV virion, and wherein the composition comprises about 1 x 10^{12} to about 6.2 x 10^{12} genome copies per milliliter of the rAAV virion.

38. The pharmaceutical composition of any one of claims 36-37, wherein the composition is formulated for administration into the lacrimal gland or onto the ocular surface.

39. The pharmaceutical composition of any one of claims 36-38, wherein the pharmaceutical composition is formulated for use, or adaptable for use, in the treatment of an ocular disease, disorder, or condition.

40. Use of the rAAV virion of any one of claims 14 to 26, the composition of any one of claims 27-35, or the pharmaceutical composition of any one of claims 36 to 39, in the manufacture of a medicament for the treatment of an ocular condition in a subject in need thereof.

41. A kit comprising the rAAV virion of any one of claims 14 to 26, the composition of any one of claims 27-35, or the pharmaceutical composition of any one of claims 36 to 39, and instructions for the treatment or delay in progression of an ocular condition in a subject in need thereof.