What is claimed is:

1. A method for treating a patient suffering from the loss or impairment of vision caused by a retinoid deficiency disorder, comprising the steps of:
   a) administering to the patient an initial therapeutically effective dose of a synthetic retinal derivative that provides replacement for endogenously produced 11-cis-retinal,
   b) refraining from administering to the patient an additional therapeutically effective dose of synthetic retinal derivative for a resting interval of at least 1 month,
   c) administering to the patient an additional therapeutically effective dose of a synthetic retinal derivative.
2. The method of claim 1, wherein the initial dose is administered in a single dose.
3. The method of claim 1, wherein the initial dose is administered in a divided dose over a period of from 5 to 14 days.
4. The method of claim 1, wherein the initial dose is administered in a divided dose over a period of 7 to 10 days.
5. The method of claim 1, wherein the initial dose is administered in a divided dose over a period of one week.
6. The method of claim 1, wherein the synthetic retinal derivative is a retinyl ester of 9-cis-retinal.
7. The method of claim 1, wherein the synthetic retinal derivative is a retinyl ester of 11-cis-retinal.
8. The method of claim 1, wherein the synthetic retinal derivative is 11-cis-retinal acetate.
9. The method of claim 1, wherein the synthetic retinal derivative is 9-cis-retinal acetate.

10. The method of claim 1, wherein the initial dose is administered in a divided dose over a period of two weeks.

11. The method of claim 1, wherein the initial dose is in the range of from 70 to mg/m^2 to 525 mg/kg.

12. The method of claim 1, wherein the initial dose is in the range of from 70 mg/ m^2 to 490 mg/kg.

13. The method of claim 1, wherein the initial dose is in the range of from 280 mg/m^2 to 490 mg/m^2.

14. The method of claim 1, wherein the initial dose is in the range of from 70 mg/m^2 to 280 mg/m^2.

15. The method of claim 5, wherein the initial dose is 280 mg/m^2.

16. A method for treating a patient suffering from the loss or impairment of vision caused by a retinoid deficiency disorder, comprising the steps of:

a) administering to the patient an initial therapeutically effective dose of a synthetic retinal derivative that provides replacement for endogenously produced 11-cis-retinal,

b) refraining from administering to the patient an additional dose of a synthetic retinal derivative until the improvement or restoration of the patient's vision diminishes,

c) administering to the patient another therapeutically effective dose of a synthetic retinal derivative.

17. The method of claim 11, wherein the initial dose of a synthetic retinal derivative is administered orally.

18. The method of claim 11, wherein the initial dose of a synthetic retinal derivative is administered by intraocular injection.

19. The method of claims 1-18, wherein the resting interval is at least 3 months.

20. The method of claim 19, wherein the resting interval is at least 6 months.

21. The method of claim 19, wherein the resting interval is at least 9 months.

22. The method of claim 19, wherein the resting interval is from 3 to 6 months.

23. The method of claim 19, wherein the resting interval is from 6 to 9 months.

24. The method of claim 19, wherein the resting interval is from 3 to 9 months.

25. The method of claim 19, wherein the resting interval is from 3 months to 1 year.

26. The method of claims 1-25, wherein the retinoid deficiency disorder is retinitis pigmentosa.

27. The method of claims 1-25, wherein the retinoid deficiency disorder is Leber congenital amaurosis.

28. The method of claims 1-25, wherein the retinoid deficiency disorder is congenital stationary night blindness.

29. The method of claims 1-25, wherein the retinoid deficiency disorder is fundus albipunctatus.

30. The method of claims 1-25, wherein the retinoid deficiency disorder is age-related dark adaptation.

31. The method of claims 1-25, wherein the retinoid deficiency disorder is age-related macular degeneration.

32. The method of claims 1-25, wherein the retinoid deficiency disorder is caused by a mutation in the LRAT gene.

33. The method of claims 1-25, wherein the retinoid deficiency disorder is caused by a mutation in the RPE65 gene.

What is claimed is:

1. Use of a synthetic retinal derivative that provides replacement for endogenously produced 11-cis-retinal in the preparation of a medicament for treating loss or impairment of vision due to inherited mutations in RPE65 or LRAT genes associated with Leber congenital amaurosis or Retinitis Pigmentosa, comprising the steps of:

a) administering to the human patient an initial therapeutically effective dose of said medicament,

b) refraining from administering to the human patient said medicament for a resting interval of at least 1 month,

c) administering to the patient an additional therapeutically effective dose of said medicament;

wherein the initial dose is administered in a single dose.

2. The use of claim 1, wherein the human patient has Retinitis Pigmentosa.

3. The use of claim 1, wherein the human patient has Leber congenital amaurosis.

4. Use of a synthetic retinal derivative that provides replacement for endogenously produced 11-cis-retinal in the preparation of a medicament for treating loss or impairment of vision caused by a retinoid deficiency disorder in a human patient having Leber congenital amaurosis, comprising the steps of:

a) administering to the human patient an initial therapeutically effective dose of said medicament,

b) refraining from administering to the human patient said medicament for a resting interval of at least 1 month,

c) administering to the patient an additional therapeutically effective dose of said medicament;

wherein the initial dose is administered in a single dose.

5. Use of a synthetic retinal derivative that provides replacement for endogenously produced 11-cis-retinal in the preparation of a medicament for treating loss or impairment of

vision caused by a retinoid deficiency disorder in a human patient having Retinitis Pigmentosa, comprising the steps of:

a) administering to the human patient an initial therapeutically effective dose of said medicament,

b) refraining from administering to the human patient said medicament for a resting interval of at least 1 month,

c) administering to the patient an additional therapeutically effective dose of said medicament;

wherein the initial dose is administered in a single dose.

6. The use of any one of claims 1-5, wherein the loss or impairment of vision is due to a mutation in the LRAT gene.

7. The use of any one of claims 1-5, wherein the loss or impairment of vision is due to a mutation in the RPE65 gene.

8. The use of claim 5, wherein the Retinitis Pigmentosa is selected from autosomal recessive retinitis pigmentosa and autosomal dominant retinitis pigmentosa.

9. The use of any one of claims 1-8, wherein the synthetic retinal derivative is a 9-cis-retinyl ester.

10. The use of any one of claims 1-8, wherein the synthetic retinal derivative is an 11-cis-retinyl ester.

11. The use of any one of claims 1-8, wherein the synthetic retinal derivative is a 9-cis or 11-cis-retinyl ester of a mono- or polycarboxylic acid, optionally wherein the carboxylic acid is a C1-C22, C2-C22, C3-C22, C1-C10, C2-C10, C3-C10, C4-C10, C4-C8, C4-C6 or C4 monocarboxylic acid or polycarboxylic acid.

12. The use of any one of claims 1-8, wherein the synthetic retinal derivative is a 9-cis or 11-cis-retinyl ester of

i) a dicarboxylic acid; or

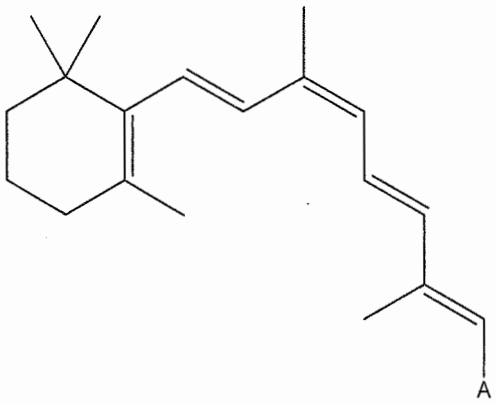
ii) an acetic acid, propionic acid, butyric acid, valeric acid, caproic acid, caprylic acid,

pelargonic acid, capric acid, lauric acid, oleic acid, stearic acid, palmitic acid, myristic acid or linoleic acid, oxalic acid (ethanedioic acid), malonic acid (propanedioic acid), succinic acid (butanedioic), fumaric acid (butenedioic acid), malic acid (2-hydroxybutenedioic acid), glutaric acid (pentanedioic acid), adipic acid (hexanedioic acid), pimelic acid (heptanedioic), suberic acid (octanedioic), azelaic acid (nonanedioic acid), sebacic acid (decanedioic acid), citric acid, oxaloacetic acid or ketoglutaratic acid.

13. The use of any one of claims 1-8, wherein the synthetic retinal derivative is selected from 9-cis-retinal or 11-cis-retinal.

14. The use of any one of claims 1-8, wherein the synthetic retinal derivative is selected from 9-cis-retinol or 11-cis-retinol.

15. The use of any one of claims 1-8, wherein the synthetic retinal derivative has a structure according to formula (XIV):



(XIV)

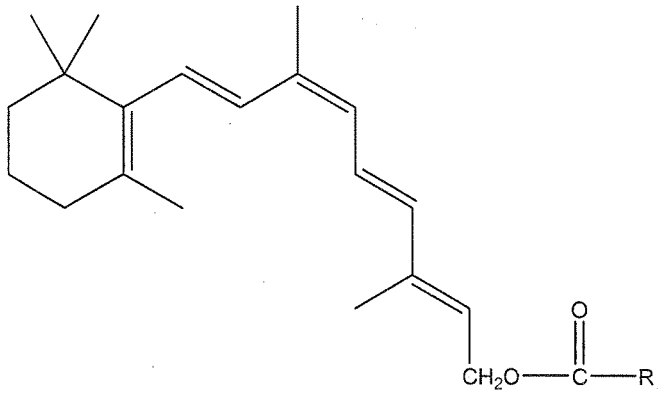
wherein A is CH_2OR and R, together with the remainder of the molecule, forms a retinyl ester, optionally wherein R is a C1 to C24 straight chain or branched acyl group.

16. The use of claim 15, wherein R is a C1 to C24 straight chain or branched acyl group of

i) a dicarboxylic acid;
ii) a carboxylic acid;
iii) a hydroxyl acid; or
iv) oxalic acid (ethanedioic acid), malonic acid (propanedioic acid), succinic acid

(butanedioic), fumaric acid (butenedioic acid), malic acid (2-hydroxybutenedioic acid), glutaric acid (pentanedioic acid), adipic acid (hexanedioic acid), pimelic acid (heptanedioic), suberic acid (octanedioic), azelaic acid (nonanedioic acid), sebacic acid (decanedioic acid), citric acid, oxaloacetic acid or ketoglutaratic acid.

17. The use of any one of claims 1-8, wherein the synthetic retinal derivative has a structure according to formula (XXX):



(XXX)

wherein R is an alkyl group or alkenyl group and optionally C1-4 alkyl.

18. The use of claim 17, wherein R is methyl, ethyl, n-propyl, 1-methylethyl (iso-propyl), n-butyl, n-pentyl, 1,1-dimethylethyl (t-butyl), 3-methylhexyl or 2-methylhexyl.

19. The use of any one of claims 1-8, wherein the synthetic retinal derivative is 11-cis-retinyl acetate.

20. The use of any one of claims 1-8, wherein the synthetic retinal derivative is 9-cis-retinyl acetate.

21. The use of any one of claims 1-8, wherein the synthetic retinal derivative is 9-cis-retinyl succinate.

22. The use of any one of claims 1 to 21, wherein the initial dose is in the range of from 1.25 mg/m^2 to 40 mg/m^2.

23. The use of claim 22, wherein the initial dose is 10 mg/m^2.

24. The use of claim 22, wherein the initial dose is 40 mg/m^2.

25. The use of any one of claims 1 to 21, wherein the initial dose is in the range of from 49 mg/m^2 to 840 mg/m^2.

26. The use of any one of claims 1 to 21, wherein the initial dose is in the range of from 70 mg/m^2 to 525 mg/m^2.

27. The use of any one of claims 1 to 21, wherein the initial dose is in the range of from 70 mg/m^2 to 490 mg/m^2.

28. The use of any one of claims 1 to 21, wherein the initial dose is in the range of from 70 mg/m^2 to 280 mg/m^2.

29. The use of any one of claims 1 to 21, wherein the initial dose is in the range of from 280 mg/m^2 to 490 mg/m^2.

30. The use of claim 29, wherein the initial dose is 280 mg/m^2.

31. The use of any one of claims 1-21, wherein the dose in step c) is reduced from the amount of the initial dose.

32. The use of any one of claims 1-21, wherein the dose in step c) is the same as the amount of the initial dose.

33. The use of any one of claims 1-21, wherein the dose in step c) is increased from the amount of the initial dose.

34. The use of any one of claims 1-33, wherein the initial dose of said medicament is to be administered orally.

35. The use of claim 34, wherein said medicament comprises a lipid vehicle.

36. The use of claim 35, wherein said lipid vehicle comprises soybean oil.

37. The use of any one of claims 1-9, wherein the synthetic retinal derivative is a 9-cis-retinyl

ester formulated as an orally-administered pharmaceutically acceptable composition which comprises the 9-cis-retinyl ester and soybean oil, or wherein the synthetic retinal derivative is a 9-cis-retinyl ester formulated for subcutaneous injection in soybean oil.

38. The use of claim 37, wherein the medicament comprises 9-cis-retinyl acetate in a pharmaceutically acceptable composition which comprises the 9-cis-retinyl acetate and butylated hydroxyanisole (BHA) dissolved in soybean oil, optionally wherein: (i) the 9-cis-retinyl acetate is in an amount selected from 1.25 mg/mL, 5.0 mg/mL and 20 mg/mL, and (ii) the BHA is in an amount of 0.10% w/w.

39. The use of any of claims 1-33, wherein the initial dose of said medicament is to be administered by intraocular injection.

40. The use of any one of claims 1-39, wherein the resting interval is at least 3 months.

41. The use of claim 40, wherein the resting interval is at least 6 months.

42. The use of claim 40, wherein the resting interval is at least 9 months.

43. The use of claim 40, wherein the resting interval is from 3 to 6 months.

44. The use of claim 40, wherein the resting interval is from 6 to 9 months.

45. The use of claim 40, wherein the resting interval is from 3 to 9 months.

46. The use of claim 40, wherein the resting interval is from 3 months to 1 year.

47. The use of claims 1-46, wherein the patient is younger than 15 years of age upon commencement of treatment.

48. The use of any one of claims 1-46, wherein the human subject is 20 years or older, 30 years or older, 40 years or older, 50 years or older, 60 years or older, or 70 years or older.

49. The use of any of claims 1-48, wherein the medicament is for use in improving visual acuity or visual field.

50. The use of claim 49, wherein the improvement in visual field comprises an expansion of the subject's visual field temporally and/or nasally, wherein the expansion of the patient's visual field during the first dosing period is by at least 5 degrees or at least 10 degrees nasally, and at least 20 degrees, or at least 30 degrees or at least 40 degrees temporally.

51. The use of claim 49, wherein the medicament is for use in improving visual acuity in patients with very low visual acuity.

52. The use of claim 49, wherein the visual acuity is determined by the Early Treatment of Diabetic Retinopathy Study (ETDRS) and said medicament provides an improvement in visual acuity in said subject over baseline, wherein both said baseline and said improvement are determined by said ETDRS.

53. The use of claim 49, wherein said visual field is measured by the Goldmann Visual Field test (GVF), and said medicament provides an improvement over baseline as determined by GVF using an isopter selected from the I4e target, V4e target and a combination thereof.

54. The use of any one of claims 49-53, wherein said improving is clinically meaningful.