WHAT IS CLAIMED IS:

1. A pharmaceutical formulation comprising an antiviral oligonucleotide chelate complex for the treatment of a viral infection.

2. A pharmaceutical formulation comprising an anti-cholesterol oligonucleotide chelate complex for the treatment of hypercholesterolemia.

3. A pharmaceutical formulation comprising an anti-triglyceride oligonucleotide chelate complex for the treatment of hypertriglyceridemia.

4. A pharmaceutical formulation comprising an anti-Alzheimer oligonucleotide chelate complex for the treatment of Alzheimer's disease.

5. A pharmaceutical formulation comprising an anti-prion oligonucleotide chelate complex for the treatment of prion disease.

6. The pharmaceutical formulation of any one of claims 1-5, wherein said oligonucleotide chelate complex is prepared with a divalent metal cation.

7. The pharmaceutical formulation of any one of claims 1-6, wherein said oligonucleotide chelate complex is prepared with calcium.

8. The pharmaceutical formulation of any one of claims 1-6, wherein said oligonucleotide chelate complex is prepared with magnesium.

9. The pharmaceutical formulation of any one of claims 1-6, wherein said oligonucleotide chelate complex is prepared with iron (2+), manganese, copper or zinc.

10. The pharmaceutical formulation of any one of claims 1-9, wherein said oligonucleotide chelate complex comprises two or more different divalent metal cations.

11. The pharmaceutical formulation of any one of claims 1-10, wherein said oligonucleotide chelate complex comprises calcium and magnesium.

12. The pharmaceutical formulation of any one of claims 1-11, wherein said oligonucleotide chelate complex comprises at least one double stranded oligonucleotide.

13. The pharmaceutical formulation of any one of claims 1-12, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide with at least one phosphorothioate linkage.

14. The pharmaceutical formulation of any one of claims 1-13, wherein said oligonucleotide chelate complex comprises at least one fully phosphorothioated oligonucleotide.

15. The pharmaceutical formulation of any one of claims 1-14, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide with one 2' modified ribose.

16. The pharmaceutical formulation of any one of claims 1-15, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide which has each ribose 2' O-methylated.

17. The pharmaceutical formulation of any one of claims 1-16, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide which has at least one 5'methylcytosine.

18. The pharmaceutical formulation of any one of claims 1-17, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide wherein each cytosine is 5'methylcytosine.

19. The pharmaceutical formulation of any one of claims 1-18, wherein said oligonucleotide chelate complex contains at least one oligonucleotide that is fully phosphorothioated and has all riboses with the 2' O methyl modification and has all cytosines present as 5'methylcytosine.

20. The pharmaceutical formulation of any one of claims 1-11, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide selected from SEQ ID NOs: 1-6 or 10-18.

21. A pharmaceutical formulation comprising a chelate complex comprising SEQ ID NO: 20 for the treatment of hypercholesterolemia.

22. A pharmaceutical formulation comprising a chelate complex comprising SEQ ID NO: 19 for the treatment of Duchene's muscular dystrophy.

23. A pharmaceutical formulation comprising a chelate complex comprising SEQ ID NO: 7 for the treatment of hepatitis C infection.

24. The pharmaceutical formulation of any one of claims 1-23, wherein said oligonucleotide chelate complex is formulated for a subcutaneous administration.

25. The pharmaceutical formulation of any one of claims 1-23, wherein said oligonucleotide chelate complex is formulated for intravenous infusion.

26. The pharmaceutical formulation of any one of claims 1-23, wherein said oligonucleotide chelate complex is formulated for an administration selected from the group consisting of: intraocular, oral ingestion, enteric, inhalation, intramuscular injection, intraperitoneal injection, intrathecal injection, intrathecal infusion, intratracheal, intravenous injection and topically.

27. The pharmaceutical formulation of any one of claims 1-23, wherein said oligonucleotide chelate complex is formulated for an administration by aerosol.

28. The pharmaceutical formulation of claim 1, wherein the virus causing the infection is hepatitis B virus.

29. The pharmaceutical formulation of claim 1, wherein the virus causing the infection is a hepadnavirus.

30. The pharmaceutical formulation of claim 1, wherein the virus causing the infection is hepatitis delta virus.

31. The pharmaceutical formulation of claim 1, wherein the virus causing the infection is influenza.

32. The pharmaceutical formulation of claim 1, wherein the virus causing the infection is selected from the group consisting of: a member of the retroviridae, HIV-1, HIV-2, a member of the herpesviridae, HSV-1, HSV-2, cytomegalovirus, a member of the poxviridae, a member of the paramyxoviridae, respiratory syncytial virus, parainfluenza virus, a member of the bunyaviridae, hantavirus, a member of the filoviridae, Ebola virus, Marburg virus, a member of the flaviviridae, yellow fever virus, dengue virus, West Nile virus, hepatitis C virus, a member of the orthomyxoviridae, a member of the togaviridae, a member of the coronaviridae, a member of the rhabdoviridae, and a member of the arenaviridae.

33. The pharmaceutical formulation of claim 1, wherein said oligonucleotide chelate complex comprises SEQ ID NO:2.

34. The pharmaceutical formulation of claim 1, wherein said oligonucleotide chelate complex comprises SEQ ID NO:18.

35. The pharmaceutical formulation of claim 1, wherein said oligonucleotide chelate complex comprises SEQ ID NO:11.

36. The pharmaceutical formulation of claim 1, wherein said oligonucleotide chelate complex comprises SEQ ID NO:21.

37. Use of an antiviral oligonucleotide chelate complex for the treatment of a viral infection.

38. Use of an anti-cholesterol oligonucleotide chelate complex for the treatment of hypercholesterolemia.

39. Use of an anti-triglyceride oligonucleotide chelate complex for the treatment of hypertriglyceridemia.

40. Use of an anti-Alzheimer's oligonucleotide chelate complex for the treatment of Alzheimer's disease.

41. Use of an anti-prion oligonucleotide chelate complex for the treatment of prion disease.

42. The use of any one of claims 36-41, wherein said oligonucleotide chelate complex is prepared with calcium.

43. The use of any one of claims 36-42, wherein said oligonucleotide chelate complex is prepared with magnesium.

44. The use of any one of claims 36-43, wherein said oligonucleotide chelate complex is prepared with, iron (2+), manganese, copper or zinc.

45. The use of any one of claims 36-44, wherein said oligonucleotide chelate complex comprises two or more different divalent metal cations.

46. The use of any one of claims 36-45, wherein said oligonucleotide chelate complex comprises calcium and magnesium.

47. The use of any one of claims 36-46, wherein said oligonucleotide chelate complex comprises at least one double stranded oligonucleotide.

48. The use of any one of claims 36-47, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide with at least one phosphorothioate linkage.

49. The use of any one of claims 36-48, wherein said oligonucleotide chelate complex comprises at least one fully phosphorothioated oligonucleotide.

50. The use of any one of claims 36-49, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide with one 2' modified ribose.

51. The use of any one of claims 36-50, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide which has each ribose 2' O-methylated.

52. The use of any one of claims 36-51, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide which has at least one 5'methylcytosine.

53. The use of any one of claims 36-52, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide wherein all cytosines are 5'methylcytosine.

54. The use of any one of claims 36-53, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide that is fully phosphorothioated and has all riboses with the 2' O methyl modification and has all cytosines present as 5'methylcytosine

55. The use of any one of claims 36-40, wherein said oligonucleotide chelate complex comprises an oligonucleotide selected from SEQ ID NOs: 1-6 or 10-18.

56. Use of an oligonucleotide chelate complex comprising SEQ ID NO:20 for the treatment of hypercholesterolemia.

57. Use of an oligonucleotide chelate complex comprising SEQ ID NO: 19 for the treatment of Duschene's muscular dystrophy.

58. Use of an oligonucleotide chelate complex comprising SEQ ID NO:7 for the treatment of hepatitis C infection.

59. The use of any one of claims 36-58, wherein said oligonucleotide chelate complex is formulated for a subcutaneous administration.

60. The use of any one of claims 36-58, wherein said oligonucleotide chelate complex is formulated for intravenous infusion.

61. The use of any one of claims 36-58, wherein said ON chelate complex is formulated for an administration selected from the group consisting of: intraocular, oral ingestion, enteric, inhalation, intramuscular injection, intraperitoneal injection, intrathecal injection, intrathecal infusion, intratracheal, intravenous injection and topically.

62. The use of any one of claims 36-58, wherein said oligonucleotide chelate complex is formulated for an administration by aerosol.

63. The use of claim 36, wherein the virus causing the infection is hepatitis B virus.

64. The use of claim 36, wherein the virus causing the infection is a hepadnavirus.

65. The use of claim 36, wherein the virus causing the infection is a hepatitis delta virus.

66. The use of claim 36, wherein the virus causing the infection is influenza.

67. The use of claim 37, wherein the virus causing the infection is influenza.

68. The use of claim 37, wherein the virus causing the infection is selected from the group consisting of: a member of the retroviridae, HIV-1, HIV-2, a member of the herpesviridae, HSV-1, HSV-2, cytomegalovirus, a member of the poxviridae, a member of the paramyxoviridae, respiratory syncytial virus, parainfluenza virus, a member of the bunyaviridae, hantavirus, a member of the filoviridae, Ebola virus, Marburg virus, a member of the flaviviridae, yellow fever virus, dengue virus, West Nile virus, hepatitis C virus, a member of the orthomyxoviridae, a member of the togaviridae, a member of the coronaviridae, a member of the rhabdoviridae, and a member of the arenaviridae.

69. The use of claim 37, wherein said oligonucleotide chelate complex comprises an oligonucleotide consisting of SEQ ID NO:2.

70. The use of claim 37, wherein said oligonucleotide chelate complex comprises an oligonucleotide consisting of SEQ ID NO:18.

71. The use of claim 37, wherein said oligonucleotide chelate complex comprises an oligonucleotide consisting of SEQ ID NO:11.

72. The use of claim 37, wherein said oligonucleotide chelate complex comprises an oligonucleotide consisting of SEQ ID NO:21.

CLAIMS:

1. A pharmaceutical formulation comprising an antiviral oligonucleotide chelate complex consisting of two or more oligonucleotides (ONS) linked intermolecularly by at least one divalent cation for the treatment of a viral infection.

2. The pharmaceutical formulation of claim 1, wherein said at least one divalent cation is calcium.

3. The pharmaceutical formulation of claim 1, wherein said at least one divalent cation is magnesium.

4. The pharmaceutical formulation of claim 1, wherein said at least one divalent cation is iron (2+), manganese, copper or zinc.

5. The pharmaceutical formulation of claim 1, wherein said at least one divalent cation consists of two or more different divalent metal cations.

6. The pharmaceutical formulation of claim 5, wherein said at least one divalent cation comprise calcium and magnesium.

7. The pharmaceutical formulation of any one of claims 1-6, wherein said oligonucleotide chelate complex comprises at least one double stranded oligonucleotide.

8. The pharmaceutical formulation of any one of claims 1-7, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide with at least one phosphorothioate linkage.

9. The pharmaceutical formulation of any one of claims 1-8, wherein said oligonucleotide chelate complex comprises at least one fully phosphorothioated oligonucleotide.

10. The pharmaceutical formulation of any one of claims 1-9, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide with one 2’ modified ribose.

11. The pharmaceutical formulation of any one of claims 1-10, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide which has each ribose 2' O-methylated.

12. The pharmaceutical formulation of any one of claims 1-11, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide which has at least one 5'methylcytosine.

13. The pharmaceutical formulation of any one of claims 1-12, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide wherein each cytosine is 5'methylcytosine.

14. The pharmaceutical formulation of any one of claims 1-13, wherein said oligonucleotide chelate complex contains at least one oligonucleotide that is fully phosphorothioated and has all riboses with the 2' O methyl modification and has all cytosines present as 5'methylcytosine.

15. The pharmaceutical formulation of any one of claims 1-14, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide selected from SEQ ID NOs: 1-6 or 10-18.

16. The pharmaceutical formulation of any one of claims 1-15, wherein said oligonucleotide chelate complex is formulated for a subcutaneous administration.

17. The pharmaceutical formulation of any one of claims 1-15, wherein said oligonucleotide chelate complex is formulated for intravenous infusion.

18. The pharmaceutical formulation of any one of claims 1-15, wherein said oligonucleotide chelate complex is formulated for an administration selected from the group consisting of: intraocular, oral ingestion, enteric, inhalation, intramuscular injection, intraperitoneal injection, intrathecal injection, intrathecal infusion, intratracheal, intravenous injection and topically.

19. The pharmaceutical formulation of any one of claims 1-15, wherein said oligonucleotide chelate complex is formulated for an administration by aerosol.

20. The pharmaceutical formulation of claim 1, wherein the virus causing the infection is hepatitis B virus.

21. The pharmaceutical formulation of claim 1, wherein the virus causing the infection is a hepadnavirus.

22. The pharmaceutical formulation of claim 1, wherein the virus causing the infection is hepatitis delta virus.

23. The pharmaceutical formulation of claim 1, wherein the virus causing the infection is influenza.

24. The pharmaceutical formulation of claim 1, wherein the virus causing the infection is selected from the group consisting of: a member of the retroviridae, HIV-1, HIV-2, a member of the herpesviridae, HSV-1, HSV-2, cytomegalovirus, a member of the poxviridae, a member of the paramyxoviridae, respiratory syncytial virus, parainfluenza virus, a member of the bunyaviridae, hantavirus, a member of the filoviridae, Ebola virus, Marburg virus, a member of the flaviviridae, yellow fever virus, dengue virus, West Nile virus, hepatitis C virus, a member of the orthomyxoviridae, a member of the togaviridae, a member of the coronaviridae, a member of the rhabdoviridae, and a member of the arenaviridae.

25. The pharmaceutical formulation of claim 1, wherein said oligonucleotide chelate complex comprises SEQ ID NO:2.

26. The pharmaceutical formulation of claim 1, wherein said oligonucleotide chelate complex comprises SEQ ID NO:18.

27. The pharmaceutical formulation of claim 1, wherein said oligonucleotide chelate complex comprises SEQ ID NO:11.

28. Use of an antiviral oligonucleotide chelate complex consisting of two or more oligonucleotides (ONS) linked intermoleculalry by at least one divalent cation in the manufacture of a medicament for the treatment of a viral infection.

29. The use of claim 28, wherein said at least one divalent cation is calcium.

30. The use of claim 28, wherein said at least one divalent cation is magnesium.

31. The use of claim 28, wherein said at least one divalent cation is iron (2+), manganese, copper or zinc.

32. The use of claim 28, wherein said at least one divalent cation consist of two or more different divalent metal cations.

33. The use of claim 32, wherein said two or more different divalent metal cations are calcium and magnesium.

34. The use of any one of claims 28-33, wherein said oligonucleotide chelate complex comprises at least one double stranded oligonucleotide.

35. The use of any one of claims 28-34, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide with at least one phosphorothioate linkage.

36. The use of any one of claims 28-35, wherein said oligonucleotide chelate complex comprises at least one fully phosphorothioated oligonucleotide.

37. The use of any one of claims 28-36, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide with one 2’ modified ribose.

38. The use of any one of claims 28-37, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide which has each ribose 2’ O-methylated.

39. The use of any one of claims 28-38, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide which has at least one 5’methylcytosine.

40. The use of any one of claims 28-39, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide wherein all cytosines are 5’methylcytosine.

41. The use of any one of claims 28-40, wherein said oligonucleotide chelate complex comprises at least one oligonucleotide that is fully phosphorothioated and has all riboses with the 2' O methyl modification and has all cytosines present as 5'methylcytosine.

42. The use of any one of claims 28-41, wherein said oligonucleotide chelate complex comprises an oligonucleotide selected from SEQ ID NOs: 1-6 or 10-18.

43. The use of any one of claims 28-42, wherein said oligonucleotide chelate complex is formulated for a subcutaneous administration.

44. The use of any one of claims 28-42, wherein said oligonucleotide chelate complex is formulated for intravenous infusion.

45. The use of any one of claims 28-42, wherein said ON chelate complex is formulated for an administration selected from the group consisting of: intraocular, oral ingestion, enteric, inhalation, intramuscular injection, intraperitoneal injection, intrathecal injection, intrathecal infusion, intratracheal, intravenous injection and topically.

46. The use of any one of claims 37-59, wherein said oligonucleotide chelate complex is formulated for an administration by aerosol.

47. The use of claim 28, wherein the virus causing the infection is hepatitis B virus.

48. The use of claim 28, wherein the virus causing the infection is a hepadnavirus.

49. The use of claim 28, wherein the virus causing the infection is a hepatitis delta virus.

50. The use of claim 28, wherein the virus causing the infection is influenza.

51. The use of claim 28, wherein the virus causing the infection is selected from the group consisting of: a member of the retroviridae, HIV-1, HIV-2, a member of the herpesviridae, HSV-1, HSV-2, cytomegalovirus, a member of the poxviridae, a member of the paramyxoviridae, respiratory syncytial virus, parainfluenza virus, a member of the bunyaviridae, hantavirus, a member of the filoviridae, Ebola virus, Marburg virus, a member of the flaviviridae, yellow fever virus, dengue virus, West Nile virus, hepatitis C virus, a

member of the orthomyxoviridae, a member of the togaviridae, a member of the coronaviridae, a member of the rhabdoviridae, and a member of the arenaviridae.

52. The use of claim 28, wherein said oligonucleotide chelate complex comprises an oligonucleotide consisting of SEQ ID NO:2.

53. The use of claim 28, wherein said oligonucleotide chelate complex comprises an oligonucleotide consisting of SEQ ID NO:18.

54. The use of claim 28, wherein said oligonucleotide chelate complex comprises an oligonucleotide consisting of SEQ ID NO:11.