

WHAT IS CLAIMED IS:

1. A formulation comprising:
a viral vector;
a buffer; and
a globular protein.
2. The formulation of claim 1, wherein the globular protein is albumin, alpha-fetoprotein, vitamin D-binding protein, afamin, a globin protein, alpha globulin, beta globulin, gamma globulin, or combinations thereof.
3. The formulation of claim 1 or 2, wherein the formulation is a liquid.
4. The formulation of claim 3, wherein the formulation comprises from about 0.1% to about 5.0% globular protein.
5. The formulation of claim 3, wherein the formulation comprises from about 0.5% to about 2.0% globular protein.
6. The formulation of claim 3, wherein the formulation comprises from about 0.75% to about 1.5% globular protein.
7. The formulation of claim 3, wherein the formulation comprises from about 0.8% to about 1.2% globular protein.
8. The formulation of claim 3, wherein the formulation comprises about 1.0% globular protein.
9. A formulation comprising:
a viral vector;
a buffer; and
an albumin.
10. The formulation of claim 1, wherein the albumin is human serum albumin, bovine serum albumin, ovalbumin or lactalbumin.
11. The formulation of claim 9 or 10, wherein the formulation is a liquid.

12. The formulation of claim 11, wherein the formulation comprises from about 0.1% to about 5.0% albumin.
13. The formulation of claim 11, wherein the formulation comprises from about 0.5% to about 2.0% albumin.
14. The formulation of claim 11, wherein the formulation comprises from about 0.75% to about 1.5% albumin.
15. The formulation of claim 11, wherein the formulation comprises from about 0.8% to about 1.2% albumin.
16. The formulation of claim 11, wherein the formulation comprises about 1.0% albumin.
17. A formulation comprising:
 - a viral vector;
 - a buffer; and
 - a polysaccharide.
18. The formulation of claim 17, wherein the polysaccharide is sodium hyaluronate, heparan, heparan sulfate, heparin, chondroitin, chondroitin sulfate, dermatan, dermatan sulfate, keratan, keratan sulfate, algin, chitosan, chitosan sulfate, dextran, dextran sulfate or combinations thereof.
19. The formulation of claim 17, wherein the polysaccharide is sodium hyaluronate.
20. The formulation of any one of claims 17-19, wherein the formulation is a liquid.
21. The formulation of claim 20, wherein the formulation comprises from about 0.01 ng/mL to about 1 mg/mL polysaccharide.
22. The formulation of claim 20, wherein the formulation comprises from about 0.05 ng/mL to about 0.5 mg/mL polysaccharide.
23. The formulation of claim 20, wherein the formulation comprises from about 0.1 ng/mL to about 0.3 mg/mL polysaccharide.
24. The formulation of claim 20, wherein the formulation comprises from about 0.15 ng/mL to about 0.25 mg/mL polysaccharide.

25. The formulation of claim 20, wherein the formulation comprises about 0.2 ng/mL polysaccharide.
26. The formulation of claim 20, wherein the formulation comprises from about 0.01 ng/mL to about 1 mg/mL sodium hyaluronate.
27. The formulation of claim 20, wherein the formulation comprises from about 0.05 ng/mL to about 0.5 mg/mL sodium hyaluronate.
28. The formulation of claim 20, wherein the formulation comprises from about 0.1 ng/mL to about 0.3 mg/mL sodium hyaluronate.
29. The formulation of claim 20, wherein the formulation comprises from about 0.15 ng/mL to about 0.25 mg/mL sodium hyaluronate.
30. The formulation of claim 20, wherein the formulation comprises about 0.2 ng/mL sodium hyaluronate.
31. The formulation of any one of claims 1-8 and 17-30, wherein the formulation comprises both a globular protein and a polysaccharide.
32. The formulation of any one of claims 9-30, wherein the formulation comprises both albumin and a polysaccharide.
33. The formulation of claim 31 or 32, wherein the polysaccharide is sodium hyaluronate.
34. The formulation of any one of claims 1-33, wherein the formulation is a liquid and wherein the formulation comprises from about 2 mM to about 100 mM buffer.
35. The formulation of any one of claims 1-33, wherein the formulation is a liquid and wherein the formulation comprises from about 5 mM to about 50 mM buffer.
36. The formulation of any one of claims 1-33, wherein the formulation is a liquid and wherein the formulation comprises from about 15 mM to about 25 mM buffer.
37. The formulation of any one of claims 1-33, wherein the formulation is a liquid and wherein the formulation comprises about 20 mM buffer.
38. The formulation of any one of claims 1-37, wherein the buffer is sodium phosphate, L-histidine, sodium citrate or a combination thereof.

39. The formulation of any one of claims 1-38, further comprising a sugar.
40. The formulation of claim 18, wherein the formulation is a liquid and wherein the formulation comprises from about 50 mM to about 500 mM sugar.
41. The formulation of claim 18, wherein the formulation is a liquid and wherein the formulation comprises from about 100 mM to about 400 mM sugar.
42. The formulation of claim 18, wherein the formulation is a liquid and wherein the formulation comprises from about 250 mM to about 350 mM sugar.
43. The formulation of claim 18, wherein the formulation is a liquid and wherein the formulation comprises about 290 mM sugar.
44. The formulation of any one of claims 39-43, wherein the sugar is sucrose, lactose, glucose, trehalose, or combinations thereof.
45. The formulation of any one of claims 39-43, wherein the sugar is sucrose.
46. The formulation of any one of claims 1-45, further comprising a surfactant.
47. The formulation of claim 46, wherein the formulation is a liquid and wherein the formulation comprises from about 0.01% to about 0.1% surfactant.
48. The formulation of claim 25, wherein the formulation is a liquid and wherein the formulation comprises from about 0.015% to about 0.025% surfactant.
49. The formulation of claim 25, wherein the formulation is a liquid and wherein the formulation comprises about 0.02% surfactant.
50. The formulation of any one of claims 46 to 49, wherein the surfactant is polysorbate 80, polysorbate 20 or Kolliphor P188.
51. The formulation of any one of claims 1-49, further comprising sodium chloride.
52. The formulation of claim 51, wherein the formulation is a liquid and wherein the formulation comprises from about 10 mM to about 500 mM sodium chloride.
53. The formulation of claim 51, wherein the formulation is a liquid and wherein the formulation comprises from about 50 mM to about 300 mM sodium chloride.

54. The formulation of claim 51, wherein the formulation is a liquid and wherein the formulation comprises from about 100 mM to about 200 mM sodium chloride.
55. The formulation of claim 51, wherein the formulation is a liquid and wherein the formulation comprises about 150 mM sodium chloride.
56. The formulation of any one of claims 1, 2, 9, 10 or 17-19, wherein the formulation is a freeze-dried solid.
57. The formulation of claim 56, wherein the buffer is sodium phosphate, L-histidine, tris, succinate, sodium citrate or a combination thereof.
58. The formulation of claim 56 or 57, further comprising a sugar.
59. The formulation of claim 58, wherein the sugar is sucrose, lactose, glucose, trehalose, or combinations thereof.
60. The formulation of claim 58, wherein the sugar is sucrose.
61. The formulation of any one of claims 56-60, further comprising a surfactant.
62. The formulation of claim 61, wherein the surfactant is polysorbate 80, polysorbate 20 or Kolliphor P188.
63. The formulation of any one of claims 56-62, further comprising sodium chloride.
64. The formulation of any one of claims 1-63, wherein the formulation has a Z-average of less than or equal to about 50 nm.
65. The formulation of any one of claims 1-63, wherein the formulation has a Z-average of less than or equal to about 40 nm.
66. The formulation of any one of claims 1-63, wherein the formulation has a Z-average of less than or equal to about 31 nm.
67. The formulation of any one of claims 1-63, wherein the formulation has a Z-average of less than or equal to about 25 nm.
68. The formulation of any one of claims 1-63, wherein the formulation has a Z-average of less than or equal to about 20 nm.

69. The formulation of any one of claims 1-68, wherein the formulation has a polydispersity index of less than or equal to about 0.5.
70. The formulation of any one of claims 1-68, wherein the formulation has a polydispersity index of less than or equal to about 0.35.
71. The formulation of any one of claims 1-68, wherein the formulation has a polydispersity index of less than or equal to about 0.3.
72. The formulation of any one of claims 1-71, wherein the viral vector is an adeno-associated viral vector, an adenoviral vector, a lentiviral vector, a retroviral vector, a herpes simplex viral vector or a hybrid vector.
73. The formulation of any one of claims 1-72, wherein the viral vector is an adenoviral vector.
74. The formulation of any one of claims 1-73, wherein the formulation is formulated for administration to a human.
75. A formulation comprising:
from about 10×10^8 vg/mL to about 10×10^{13} vg/mL of a viral vector;
from about 5 mM to about 40 mM sodium phosphate;
from about 200 mM to about 400 mM sucrose; and
from about 0.1% to about 5.0% of an albumin.
76. The formulation of claim 75, wherein the albumin is human serum albumin, bovine serum albumin or combinations thereof.
77. The formulation of claim 75 or 76, comprising from about 10×10^9 vg/mL to about 10×10^{11} vg/mL of the viral vector.
78. The formulation of any one of claims 75-77, wherein the viral vector is an adeno-associated viral vector, an adenoviral vector, a lentiviral vector, a retroviral vector, a herpes simplex viral vector or a hybrid vector.
79. A formulation comprising:
from about 10×10^8 vg/mL to about 10×10^{13} vg/mL of a viral vector;
from about 5 mM to about 40 mM sodium phosphate;

from about 200 mM to about 400 mM sucrose; and
from about 0.05 mg/mL to about 0.4 mg/mL sodium hyaluronate.

80. The formulation of claim 79, comprising from about 10×10^9 vg/mL to about 10×10^{11} vg/mL of the viral vector.
81. The formulation of claim 79 or 80, wherein the viral vector is an adeno-associated viral vector, an adenoviral vector, a lentiviral vector, a retroviral vector or a hybrid vector.
82. The formulation of any one of claims 1 to 81, wherein the viral vector is in a virus particle.
83. The formulation of claim 82, wherein the virus particle is an infectious viral particle.
84. A method for reducing aggregation of a viral vector in a formulation, comprising formulating the viral vector in any of the formulations of claims 1-83.
85. A method of preparing a viral vector formulation, the method comprising:
a. obtaining a composition comprising the viral vector;
b. adding a globular protein or a polysaccharide to the composition of (a) to form the formulation, wherein the globular protein or a polysaccharide is added in an amount sufficient to provide a Z-average of less than or equal to about 50 nm.
86. The method of claim 85, wherein the globular protein is albumin.
87. The method of claim 86, wherein the albumin is about 0.1% to about 5.0% of the formulation.
88. The method of claim 85, wherein the polysaccharide is sodium hyaluronate
89. The method of claim 88, wherein the sodium hyaluronate is about 0.05 mg/mL to about 0.4 mg/mL sodium hyaluronate of the formulation.
90. The method of any one of claims 85-89, further comprising storing the formulation for one week or greater.
91. The method of claim 90, comprising storing the formulation for greater than one month.
92. The method of any one of claims 85-91, wherein the viral vector is in a viral particle.

91. A method of preparing a viral vector formulation, the method comprising:
- obtaining a composition comprising the viral vector;
 - adding a globular protein or a polysaccharide to the composition of (a) to form the formulation, wherein the globular protein or a polysaccharide is added in an amount sufficient to provide a polydispersity index of less than or equal to about 0.5.
92. The method of claim 91, wherein the globular protein is albumin.
93. The method of claim 92, wherein the albumin is about 0.1% to about 5.0% of the formulation.
94. The method of claim 91, wherein the polysaccharide is sodium hyaluronate
95. The method of claim 94, wherein the sodium hyaluronate is about 0.05 mg/mL to about 0.4 mg/mL sodium hyaluronate of the formulation.
96. The method of any one of claims 91-95, further comprising storing the formulation for one week or greater.
97. The method of claim 96, comprising storing the formulation for greater than one month.
98. The method of any one of claims 91-97, wherein the viral vector is in a viral particle.
99. A method of stabilizing a viral vector formulation for long term storage, the method comprising:
- obtaining a composition comprising the viral vector;
 - adding a globular protein or a polysaccharide to the composition of (a) to form the formulation, wherein the globular protein or a polysaccharide is added in an amount sufficient to provide a polydispersity index of less than or equal to about 0.5;
 - storing the formulation for greater than one week.
100. The method of claim 99, wherein the formulation is stored for greater than one month.
101. The method of claim 99, wherein the formulation is freeze-dried after adding the globular protein or a polysaccharide to the composition of (a).