

What is claimed is:

1. A stable liquid pharmaceutical formulation comprising:

(a) sucrose at a concentration from 1 % $\pm$ 0.2% to 20% $\pm$ 4% w/v;
(b) a buffer comprising histidine at a concentration from 5 mM $\pm$ 1 mM to 20 mM $\pm$ 4 mM;
(c) an organic cosolvent comprising polysorbate at a concentration from 0.01% $\pm$ 0.005% to 0.5% $\pm$ 0.25% w/v; and

(d) at least one antibody which binds specifically to Ebola virus (EBOV) and comprises a heavy chain variable region (HCVR) comprising three heavy chain complementarity determining regions (CDRs) (HCDR1, HCDR2 and HCDR3) and a light chain variable region (LCVR) comprising three light chain CDRs (LCDR1, LCDR2 and LCDR3), wherein a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences is selected from the group consisting of (i) SEQ ID NOs: 4/6/8/12/14/16, (ii) SEQ ID NOs: 22/24/26/30/32/34, and (iii) SEQ ID NOs: 40/42/44/48/50/52;

wherein the formulation comprises the following: (i), (ii), (iii), (i)+(ii), (i)+(iii), (ii)+(iii), or (i)+(ii)+(iii), at a total antibody concentration from 5 mg/mL $\pm$ 0.75 mg/mL to 250 mg/mL $\pm$ 45 mg/mL; and

wherein the formulation has a pH of 6.0 $\pm$ 0.3.

2. The pharmaceutical formulation of claim 1, wherein the total antibody concentration is 25 mg/mL $\pm$ 3.75 mg/mL.

3. The pharmaceutical formulation of claim 1, wherein the total antibody concentration is 50 mg/mL $\pm$ 7.5 mg/mL.

4. The pharmaceutical formulation of claim 1, wherein the total antibody concentration is 100 mg/mL $\pm$ 15.0 mg/mL.

5. The pharmaceutical formulation of claim 1, wherein the total antibody concentration is 150 mg/mL $\pm$ 22.5 mg/mL.

6. The pharmaceutical formulation of claim 1, wherein the histidine buffer concentration is 10 mM $\pm$ 2 mM.

7. The pharmaceutical formulation of claim 1, wherein the polysorbate concentration is $0.1\% \pm 0.05\%$ w/v.
8. The pharmaceutical formulation of claim 1, wherein the polysorbate concentration is $0.2\% \pm 0.1\%$ w/v.
9. The pharmaceutical formulation of any one of claims 1 – 8, wherein the polysorbate is polysorbate 80.
10. The pharmaceutical formulation of claim 1, wherein the sucrose concentration is from $5\% \pm 1\%$ to $15\% \pm 3\%$ w/v.
11. The pharmaceutical formulation of claim 10, wherein the sucrose concentration is $10\% \pm 2\%$ w/v.
12. The pharmaceutical formulation of claim 1, comprising (i) + (ii).
13. The pharmaceutical formulation of claim 1, comprising (i) + (iii).
14. The pharmaceutical formulation of claim 1, comprising (ii) + (iii).
15. The pharmaceutical formulation of claim 1, comprising (i) + (ii) + (iii).
16. The pharmaceutical formulation of any one of claims 12-15 comprising:
- (a) from $5\% \pm 1\%$ to $15\% \pm 3\%$ w/v sucrose,
 - (b) from $5\text{ mM} \pm 1\text{ mM}$ to $20\text{ mM} \pm 4\text{ mM}$ histidine buffer,
 - (c) from $0.01\% \pm 0.005\%$ to $0.5\% \pm 0.25\%$ w/v polysorbate, and
 - (d) $50\text{ mg/mL} \pm 7.5\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 .
17. The pharmaceutical formulation of any one of claims 12-15 comprising:
- (a) $10\% \pm 2\%$ w/v sucrose,
 - (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
 - (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and
 - (d) $50\text{ mg/mL} \pm 7.5\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 .

18. The pharmaceutical formulation of claim 1 comprising:
- (a) $10\% \pm 2\%$ w/v sucrose,
 - (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
 - (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and
 - (d) $50\text{ mg/mL} \pm 7.5\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 ;
- wherein the antibody comprises an HCVR/LCVR amino acid sequence pair of (i)
SEQ ID NOs: 2/10.
19. The pharmaceutical formulation of claim 1 comprising:
- (a) $10\% \pm 2\%$ w/v sucrose,
 - (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
 - (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and
 - (d) $50\text{ mg/mL} \pm 7.5\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 ;
- wherein the antibody comprises an HCVR/LCVR amino acid sequence pair of (ii)
SEQ ID NOs: 20/28.
20. The pharmaceutical formulation of claim 1 comprising:
- (a) $10\% \pm 2\%$ w/v sucrose,
 - (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
 - (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and
 - (d) $50\text{ mg/mL} \pm 7.5\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 ;
- wherein the antibody comprises an HCVR/LCVR amino acid sequence pair of (iii)
SEQ ID NOs: 38/46.
21. The pharmaceutical formulation of claim 1 comprising:
- (a) $10\% \pm 2\%$ w/v sucrose,
 - (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
 - (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and
 - (d) $50\text{ mg/mL} \pm 7.5\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 ;

wherein a first antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 4/6/8/12/14/16, and a second antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 22/24/26/30/32/34.

22. The pharmaceutical formulation of claim 1 comprising:

- (a) $10\% \pm 2\%$ w/v sucrose,
 - (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
 - (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and
 - (d) $50\text{ mg/mL} \pm 7.5\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 ;

wherein a first antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 4/6/8/12/14/16, and a second antibody comprises an HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 40/42/44/48/50/52.

23. The pharmaceutical formulation of claim 1 comprising:

- (a) $10\% \pm 2\%$ w/v sucrose,
 - (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
 - (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and
 - (d) $50\text{ mg/mL} \pm 7.5\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 ;

wherein a first antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 22/24/26/30/32/34, and a second antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 40/42/44/48/50/52.

24. The pharmaceutical formulation of claim 1 comprising:

- (a) $10\% \pm 2\%$ w/v sucrose,
- (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
- (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and

(d) 50 mg/mL $\pm$ 7.5 mg/mL total antibody,

at pH 6.0 $\pm$ 0.3;

wherein a first antibody comprises a set of

HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID

NOs: 4/6/8/12/14/16, a second antibody comprises a set of

HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID

NOs: 22/24/26/30/32/34, and a third antibody comprises a set of

HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID

NOs: 40/42/44/48/50/52.

25. The pharmaceutical formulation of any one of claims 12-15 comprising:

(a) from 5% $\pm$ 1% to 15% $\pm$ 3% w/v sucrose,

(b) from 5 mM $\pm$ 1 mM to 20 mM $\pm$ 4 mM histidine buffer,

(c) from 0.01% $\pm$ 0.005% to 0.5% $\pm$ 0.25% w/v polysorbate, and

(d) 100 mg/mL $\pm$ 15 mg/mL total antibody,

at pH 6.0 $\pm$ 0.3.

26. The pharmaceutical formulation of any one of claims 12-15 comprising:

(a) 10% $\pm$ 2% w/v sucrose,

(b) 10mM $\pm$ 2mM histidine buffer,

(c) 0.1% $\pm$ 0.05% w/v polysorbate, and

(d) 100 mg/mL $\pm$ 15 mg/mL total antibody,

at pH 6.0 $\pm$ 0.3.

27. The pharmaceutical formulation of claim 1 comprising:

(a) 10% $\pm$ 2% w/v sucrose,

(b) 10mM $\pm$ 2mM histidine buffer,

(c) 0.1% $\pm$ 0.05% w/v polysorbate, and

(d) 100 mg/mL $\pm$ 15 mg/mL total antibody,

at pH 6.0 $\pm$ 0.3;

wherein the antibody comprises a set of

HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID

NOs: 4/6/8/12/14/16.

28. The pharmaceutical formulation of claim 1 comprising:
- (a) $10\% \pm 2\%$ w/v sucrose,
 - (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
 - (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and
 - (d) $100\text{ mg/mL} \pm 15\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 ;
- wherein the antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 22/24/26/30/32/34.
29. The pharmaceutical formulation of claim 1 comprising:
- (a) $10\% \pm 2\%$ w/v sucrose,
 - (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
 - (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and
 - (d) $100\text{ mg/mL} \pm 15\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 ;
- wherein the antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 40/42/44/48/50/52.
30. The pharmaceutical formulation of claim 1 comprising:
- (a) $10\% \pm 2\%$ w/v sucrose,
 - (b) $10\text{mM} \pm 2\text{mM}$ histidine buffer,
 - (c) $0.1\% \pm 0.05\%$ w/v polysorbate, and
 - (d) $100\text{ mg/mL} \pm 15\text{ mg/mL}$ total antibody,
- at pH 6.0 ± 0.3 ;
- wherein a first antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 4/6/8/12/14/16, and a second antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 22/24/26/30/32/34.
31. The pharmaceutical formulation of claim 1 comprising:
- (a) $10\% \pm 2\%$ w/v sucrose,

- (b) 10mM $\pm$ 2mM histidine buffer,
 - (c) 0.1% $\pm$ 0.05% w/v polysorbate, and
 - (d) 100 mg/mL $\pm$ 15 mg/mL total antibody,
- at pH 6.0 $\pm$ 0.3;

wherein a first antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 4/6/8/12/14/16 and a second antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 40/42/44/48/50/52.

32. The pharmaceutical formulation of claim 1 comprising:

- (a) 10% $\pm$ 2% w/v sucrose,
 - (b) 10mM $\pm$ 2mM histidine buffer,
 - (c) 0.1% $\pm$ 0.05% w/v polysorbate, and
 - (d) 100 mg/mL $\pm$ 15 mg/mL total antibody,
- at pH 6.0 $\pm$ 0.3;

wherein a first antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 22/24/26/30/32/34, and a second antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 40/42/44/48/50/52.

33. The pharmaceutical formulation of claim 1 comprising:

- (a) 10% $\pm$ 2% w/v sucrose,
 - (b) 10mM $\pm$ 2mM histidine buffer,
 - (c) 0.1% $\pm$ 0.05% w/v polysorbate, and
 - (d) 100 mg/mL $\pm$ 15 mg/mL total antibody,
- at pH 6.0 $\pm$ 0.3;

wherein a first antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 4/6/8/12/14/16, a second antibody comprises a set of HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 22/24/26/30/32/34, and a third antibody comprises a set of

HCDR1/HCDR2/HCDR3/LCDR1/LCDR2/LCDR3 amino acid sequences of SEQ ID NOs: 40/42/44/48/50/52.

34. The pharmaceutical formulation of any one of claims 1 – 33, wherein the formulation has a viscosity of less than 10 cP.

35. The pharmaceutical formulation of claim 34, wherein the formulation has a viscosity of less than 5 cP.

36. The pharmaceutical formulation of claim 34, wherein the formulation has a viscosity of less than 2.5 cP.

37. The pharmaceutical formulation of any one of claims 1 – 33, wherein at least 90% of the antibody is the native species after 28 days at 45°C.

38. The pharmaceutical formulation of any one of claims 1 – 33, wherein at least 18% of the antibody is the main charge variant of the antibody after 28 days at 45°C.

39. The pharmaceutical formulation of any one of claims 1 – 33, wherein at least 96% of the antibody is the native species after three months at 25°C.

40. The pharmaceutical formulation of any one of claims 1 – 33, wherein at least 30% of the antibody is the main charge variant of the antibody after three months at 25°C.

41. The pharmaceutical formulation of any one of claims 1 – 33, wherein at least 96% of the antibody is the native species after 12 months at 5°C.

42. The pharmaceutical formulation of any one of claims 1 – 33, wherein at least 34% of the antibody is the main charge variant of the antibody after 12 months at 5°C.

43. The pharmaceutical formulation of any one of claims 1 – 33, wherein at least 97% of the antibody is the native species after 120 minutes agitation.

44. The pharmaceutical formulation of any one of claims 1 – 33, wherein at least 35% of the antibody is the main charge variant of the antibody after 120 minutes agitation.

45. The pharmaceutical formulation of any one of claims 1 – 33, wherein at least 97% of the antibody is the native species after 8 freeze thaw cycles.

46. The pharmaceutical formulation of any one of claims 1 – 33, wherein at least 35% of the antibody is the main charge variant of the antibody after 8 freeze thaw cycles.

47. The pharmaceutical formulation of claim 1, wherein the formulation maintains ADCC potency of at least 90%, or at least 95%, in an ADCC bioassay after storage at 5°C for 6 months, relative to the same formulation prior to storage at 5°C for 6 months.

48. The pharmaceutical formulation of claim 1, wherein the formulation maintains pseudovirus neutralization activity of at least 95% after storage at 5°C for 6 months, relative to the same formulation prior to storage at 5°C for 6 months.

49. The pharmaceutical formulation of claim 1, wherein the formulation maintains ADCC potency of at least 80%, or at least 85%, in an ADCC bioassay after storage at 25°C/60% RH for 6 months, relative to the same formulation prior to storage at 25°C/60% RH for 6 months.

50. The pharmaceutical formulation of claim 1, wherein the formulation maintains pseudovirus neutralization activity of at least 95% after storage at 25°C/60% RH for 6 months, relative to the same formulation prior to storage at 25°C/60% RH for 6 months.

51. The pharmaceutical formulation of claim 1, wherein the formulation maintains pseudovirus neutralization activity of at least 95% after storage at 40°C/75% RH for 6 months, relative to the same formulation prior to storage at 40°C/75% RH for 6 months.

52. The pharmaceutical composition of claim 1, wherein the formulation maintains ADCC potency of at least 95% in an ADCC bioassay after agitation for 120 minutes, relative to the same formulation prior to agitation for 120 minutes.

53. The pharmaceutical composition of claim 1, wherein the formulation maintains ADCC potency of at least 85% in an ADCC bioassay after 8 freeze/thaw cycles, relative to the same formulation prior to 8 freeze/thaw cycles.

54. The pharmaceutical formulation of claim 1, wherein the formulation maintains pseudovirus neutralization activity of at least 95% after agitation for 120 minutes, relative to the same formulation prior to agitation for 120 minutes.

55. The pharmaceutical formulation of claim 1, wherein the formulation maintains pseudovirus neutralization activity of at least 95% after 8 freeze/thaw cycles, relative to the same formulation prior 8 freeze thaw cycles.

56. The pharmaceutical formulation of claim 1, wherein an antibody within the formulation has an attribute selected from the group consisting of:

- (i) the antibody retains ADCC activity of at least 90% after storage at -80°C for 12 months relative to the activity of the same antibody prior to storage;
- (ii) the antibody retains ADCC activity of at least 80%, or at least 90%, after storage at -30°C for 12 months relative to the activity of the same antibody prior to storage;
- (iii) the antibody retains ADCC activity of at least 90%, or at least 95%, after storage at -20°C for 3 months relative to the activity of the same antibody prior to storage;
- (iv) the antibody retains ADCC activity of at least 90%, or at least 95%, after storage at 5°C for 56 days relative to the activity of the same antibody prior to storage;
- (v) the antibody retains ADCC activity of at least 90%, or at least 95%, after storage at 25°C/60% relative humidity (RH) for 28 days relative to the activity of the same antibody prior to storage;
- (vi) the antibody retains ADCC activity of at least 90%, or at least 95%, after storage at 40°C/75%RH for 28 days relative to the activity of the same antibody prior to storage; and
- (vii) the antibody retains ADCC activity of at least 90%, or at least 95%, after agitation for 120 minutes, or 8 freeze/thaw cycles, relative to the activity of the same antibody prior to agitation or freeze/thaw, respectively.

57. The pharmaceutical formulation of claim 1, wherein an antibody within the formulation has an attribute selected from the group consisting of:

- (i) the antibody retains pseudovirus neutralization activity of at least 90%, or at least 95%, after storage at -80°C for 12 months relative to the activity of the same antibody prior to storage;
- (ii) the antibody retains pseudovirus neutralization activity of at least 90%, or at least 95%, after storage at -30°C for 12 months relative to the activity of the same antibody prior to storage;
- (iii) the antibody retains pseudovirus neutralization activity of at least 90%, or at least 95%, after storage at -20°C for 3 months relative to the activity of the same antibody prior to storage;
- (iv) the antibody retains pseudovirus neutralization activity of at least 80%, or at least 85%, or at least 90%, or at least 95%, after storage at 5°C for 56 days relative to the activity of the same antibody prior to storage;
- (v) the antibody retains pseudovirus neutralization activity of at least 80%, or at least 85%, or

at least 90%, or at least 95%, after storage at 25°C/60% relative humidity (RH) for 28 days relative to the activity of the same antibody prior to storage;

(vi) the antibody retains pseudovirus neutralization activity of at least 80%, or at least 85%, or at least 90%, or at least 95%, after storage at 40°C/75%RH for 28 days relative to the activity of the same antibody prior to storage; and

(vii) the antibody retains pseudovirus neutralization activity of at least 90%, or at least 95%, after agitation for 120 minutes, or 8 freeze/thaw cycles, relative to the activity of the same antibody prior to agitation or freeze/thaw, respectively.

58. A stable liquid pharmaceutical formulation of claim 1 comprising:

- (a) at least one antibody at a total antibody concentration of 50 mg/mL $\pm$ 7.5 mg/mL,
- (b) 10 mM $\pm$ 2 mM histidine buffer, pH 6.0 $\pm$ 0.3,
- (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and
- (d) 10% $\pm$ 2% w/v sucrose; wherein:
 - (i) at least 96% of the antibody is the native species after 12 months at 5°C;
 - (ii) at least 97% of the antibody is the native species after 120 minutes agitation; or
 - (iii) at least 97% of the antibody is the native species after 8 freeze thaw cycles.

59. The pharmaceutical formulation of claim 58 consisting of: (a) 50 mg/mL $\pm$ 7.5 mg/mL total antibody, (b) 10 mM $\pm$ 2 mM histidine buffer, (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and (d) 10% $\pm$ 2% w/v sucrose, in water at pH 6.0 $\pm$ 0.3.

60. The stable liquid pharmaceutical formulation of claim 1 comprising:

- (a) at least two antibodies at a total antibody concentration of 50 mg/mL $\pm$ 7.5 mg/mL,
- (b) 10 mM $\pm$ 2 mM histidine buffer, pH 6.0 $\pm$ 0.3,
- (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and
- (d) 10% $\pm$ 2% w/v sucrose; wherein:
 - (i) at least 96% of the antibody is the native species after 12 months at 5°C;
 - (ii) at least 97% of the antibody is the native species after 120 minutes agitation; and
 - (iii) at least 97% of the antibody is the native species after 8 freeze thaw cycles.

61. The pharmaceutical formulation of claim 60 consisting of: (a) 50 mg/mL $\pm$ 7.5 mg/mL total antibody, (b) 10 mM $\pm$ 2 mM histidine buffer, (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and (d) 10% $\pm$ 2% w/v sucrose, in water at pH 6.0 $\pm$ 0.3.

62. A stable liquid pharmaceutical formulation of claim 1 comprising:

- (a) a combination of three antibodies at a total antibody concentration of 50 mg/mL $\pm$ 7.5 mg/mL,
- (b) 10 mM $\pm$ 2 mM histidine buffer, pH 6.0 $\pm$ 0.3,
- (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and
- (d) 10% $\pm$ 2% w/v sucrose; wherein:
 - (i) at least 96% of the antibody is the native species after 12 months at 5°C;
 - (ii) at least 97% of the antibody is the native species after 120 minutes agitation; and
 - (iii) at least 97% of the antibody is the native species after 8 freeze thaw cycles.

63. The pharmaceutical formulation of claim 62 consisting of: (a) 50 mg/mL $\pm$ 7.5 mg/mL total antibody, (b) 10 mM $\pm$ 2 mM histidine buffer, (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and (d) 10% $\pm$ 2% w/v sucrose, in water at pH 6.0 $\pm$ 0.3.

64. The stable liquid pharmaceutical formulation of claim 1 comprising:

- (a) at least one antibody at a total antibody concentration of 100 mg/mL $\pm$ 15 mg/mL,
- (b) 10 mM $\pm$ 2 mM histidine buffer, pH 6.0 $\pm$ 0.3,
- (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and
- (d) 10% $\pm$ 2% w/v sucrose; wherein:
 - (i) at least 96% of the antibody is the native species after 12 months at 5°C;
 - (ii) at least 97% of the antibody is the native species after 120 minutes agitation; and
 - (iii) at least 97% of the antibody is the native species after 8 freeze thaw cycles.

65. The pharmaceutical formulation of claim 64 consisting of: (a) 100 mg/mL $\pm$ 15 mg/mL total antibody, (b) 10 mM $\pm$ 2 mM histidine buffer, (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and (d) 10% $\pm$ 2% w/v sucrose, in water at pH 6.0 $\pm$ 0.3.

66. The stable liquid pharmaceutical formulation of claim 1 comprising:

- (a) at least two antibodies at a total antibody concentration of 100 mg/mL $\pm$ 15 mg/mL,
- (b) 10 mM $\pm$ 2 mM histidine buffer, pH 6.0 $\pm$ 0.3,
- (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and
- (d) 10% $\pm$ 2% w/v sucrose; wherein:
 - (i) at least 96% of the antibody is the native species after 12 months at 5°C;

- (ii) at least 97% of the antibody is the native species after 120 minutes agitation; and
- (iii) at least 97% of the antibody is the native species after 8 freeze thaw cycles.

67. The pharmaceutical formulation of claim 66 consisting of: (a) 100 mg/mL $\pm$ 15 mg/mL total antibody, (b) 10 mM $\pm$ 2 mM histidine buffer, (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and (d) 10% $\pm$ 2% w/v sucrose, in water at pH 6.0 $\pm$ 0.3.

68. The stable liquid pharmaceutical formulation of claim 1 comprising:

- (a) a combination of three antibodies at a total antibody concentration of 100 mg/mL $\pm$ 15 mg/mL,
- (b) 10 mM $\pm$ 2 mM histidine buffer, pH 6.0 $\pm$ 0.3,
- (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and
- (d) 10% $\pm$ 2% w/v sucrose; wherein:
 - (i) at least 96% of the antibody is the native species after 12 months at 5°C;
 - (ii) at least 97% of the antibody is the native species after 120 minutes agitation; and
 - (iii) at least 97% of the antibody is the native species after 8 freeze thaw cycles.

69. The pharmaceutical formulation of claim 68 consisting of: (a) 100 mg/mL $\pm$ 15 mg/mL total antibody, (b) 10 mM $\pm$ 2 mM histidine buffer, (c) 0.1% $\pm$ 0.05% w/v polysorbate 80, and (d) 10% $\pm$ 2% w/v sucrose, in water at pH 6.0 $\pm$ 0.3.

70. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an HCDR1 of SEQ ID NO: 4, an HCDR2 of SEQ ID NO: 6, an HCDR3 of SEQ ID NO: 8, an LCDR1 of SEQ ID NO: 12, an LCDR2 of SEQ ID NO: 14, and an LCDR3 of SEQ ID NO: 16.

71. The pharmaceutical formulation of claim 70, wherein the antibody comprises an HCVR of SEQ ID NO: 2 and an LCVR of SEQ ID NO: 10.

72. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an HCVR having 90% sequence identity to SEQ ID NO: 2.

73. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an LCVR having 90% sequence identity to SEQ ID NO: 10.

74. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an HCVR having 90% sequence identity to SEQ ID NO: 2 and an LCVR having 90% sequence identity to SEQ ID NO: 10.

75. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises a heavy chain and light chain, wherein the heavy chain comprises the amino acid sequence of SEQ ID NO: 17.

76. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises a heavy chain and light chain, wherein the light chain comprises the amino acid sequence of SEQ ID NO: 18.

77. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises a heavy chain/light chain comprising amino acid sequences of SEQ ID NOs: 17/18.

78. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an HCDR1 of SEQ ID NO: 22, an HCDR2 of SEQ ID NO: 24, an HCDR3 of SEQ ID NO: 26, an LCDR1 of SEQ ID NO: 30, an LCDR2 of SEQ ID NO: 32, and an LCDR3 of SEQ ID NO: 34.

79. The pharmaceutical formulation of claim 78, wherein the antibody comprises an HCVR of SEQ ID NO: 20 and an LCVR of SEQ ID NO: 28.

80. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an HCVR having 90% sequence identity to SEQ ID NO: 20.

81. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an LCVR having 90% sequence identity to SEQ ID NO: 28.

82. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an HCVR having 90% sequence identity to SEQ ID NO: 20 and an LCVR having 90% sequence identity to SEQ ID NO: 28.

83. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises a heavy chain and light chain, wherein the heavy chain comprises the amino acid sequence of SEQ ID NO: 35.

84. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises a heavy chain and light chain, wherein the light chain comprises the amino acid sequence of SEQ ID NO: 36.

85. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises a heavy chain/light chain comprising amino acid sequences of SEQ ID NOs: 35/36.

86. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an HCDR1 of SEQ ID NO: 40, an HCDR2 of SEQ ID NO: 42, an HCDR3 of SEQ ID NO: 44, an LCDR1 of SEQ ID NO: 48, an LCDR2 of SEQ ID NO: 50, and an LCDR3 of SEQ ID NO: 52.

87. The pharmaceutical formulation of claim 86, wherein the antibody comprises an HCVR of SEQ ID NO: 38 and an LCVR of SEQ ID NO: 46.

88. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an HCVR having 90% sequence identity to SEQ ID NO: 38.

89. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an LCVR having 90% sequence identity to SEQ ID NO: 46.

90. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises an HCVR having 90% sequence identity to SEQ ID NO: 38 and an LCVR having 90% sequence identity to SEQ ID NO: 46.

91. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises a heavy chain and light chain, wherein the heavy chain comprises the amino acid sequence of SEQ ID NO: 53.

92. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises a heavy chain and light chain, wherein the light chain comprises the amino acid sequence of SEQ ID NO: 54.

93. The pharmaceutical formulation of any one of claims 1 – 11, wherein the antibody comprises a heavy chain/light chain comprising amino acid sequences of SEQ ID NOs: 53/54.

94. A pharmaceutical formulation of any one of claims 1 – 33, wherein said formulation is contained in a container.

95. The pharmaceutical formulation of claim 94, wherein the container is a vial.
96. The pharmaceutical formulation of claim 95, wherein the vial is 10 mL Type 1 clear glass vial.
97. The pharmaceutical formulation of claim 94, wherein the container is a syringe.
98. The pharmaceutical formulation of claim 97, wherein the syringe is low-tungsten glass.
99. The pharmaceutical formulation of claim 94, wherein the container is a prefilled syringe.
100. The pharmaceutical formulation of claim 99, contained in an autoinjector.
101. A kit comprising the pharmaceutical formulation of any one of claims 1 – 33, a container, and instructions.
102. The kit of claim 101, wherein the container is a glass vial.
103. The kit of claim 101, wherein the container is a prefilled syringe.
104. The kit of claim 101, wherein the container is an autoinjector.
105. The pharmaceutical formulation of claim 15, comprising (i) + (ii) + (iii) in a ratio of 1:1:1.
106. The pharmaceutical formulation of any one of claims 1 to 33, formulated for intravenous administration, intramuscular administration, subcutaneous administration, intraperitoneal administration, percutaneous administration, mucosal administration, nasal administration, pulmonary administration, or oral administration.
107. A stable liquid pharmaceutical formulation comprising:
- (a) sucrose at a concentration of $10\% \pm 2\%$ w/v;
 - (b) a buffer comprising histidine at a concentration less than $10 \text{ mM} \pm 2 \text{ mM}$;
 - (c) an organic cosolvent comprising polysorbate at a concentration less than $0.2\% \pm 0.1\%$ w/v; and
 - (d) a first antibody comprising three heavy chain CDRs (HCDR1, HCDR2 and HCDR3) and three light chain CDRs (LCDR1, LCDR2 and LCDR3) contained in the HCVR/LCVR amino acid sequence pair of SEQ ID NOs: 2/10;

a second antibody comprising three heavy chain CDRs (HCDR1, HCDR2 and HCDR3) and three light chain CDRs (LCDR1, LCDR2 and LCDR3) contained in the HCVR/LCVR amino acid sequence pair of SEQ ID NOs: 20/28, and

a third antibody comprising three heavy chain CDRs (HCDR1, HCDR2 and HCDR3) and three light chain CDRs (LCDR1, LCDR2 and LCDR3) contained in the HCVR/LCVR amino acid sequence pair of SEQ ID NOs: 38/46,

wherein the concentration of each of the first antibody, the second antibody and the third antibody in the formulation is from 10mg/ml $\pm$ 0.75 mg/mL to 40mg/ml $\pm$ 7.5 mg/mL;

wherein the formulation has a pH of 6.0 $\pm$ 0.3.

108. The pharmaceutical formulation of claim 107, wherein the concentration of each of the first antibody, the second antibody and the third antibody is 16.67 mg/mL $\pm$ 1.25mg/ml.

109. The pharmaceutical formulation of claim 107, wherein the concentration of each of the first antibody, the second antibody and the third antibody is 33.33 mg/mL $\pm$ 2.5mg/ml.

110. The pharmaceutical formulation of any one of claims 107-109, further comprising L-histidine monohydrochloride monohydrate at a concentration of no more than 25 mM $\pm$ 5 mM.

111. The pharmaceutical formulation of any one of claims 107-109, wherein the first antibody comprises an HCDR1 of SEQ ID NO: 4, an HCDR2 of SEQ ID NO: 6, an HCDR3 of SEQ ID NO: 8, an LCDR1 of SEQ ID NO: 12, an LCDR2 of SEQ ID NO: 14, and an LCDR3 of SEQ ID NO: 16.

112. The pharmaceutical formulation of claim 111, wherein the first antibody comprises an HCVR of SEQ ID NO: 2 and an LCVR of SEQ ID NO: 10.

113. The pharmaceutical formulation of claim 111, wherein the first antibody comprises a heavy chain of SEQ ID NO: 17 and a light chain of SEQ ID NO: 18.

114. The pharmaceutical formulation of any one of claims 107-109, wherein the second antibody comprises an HCDR1 of SEQ ID NO: 22, an HCDR2 of SEQ ID NO: 24, an HCDR3 of SEQ ID NO: 26, an LCDR1 of SEQ ID NO: 30, an LCDR2 of SEQ ID NO: 32, and an LCDR3 of SEQ ID NO: 34.

115. The pharmaceutical formulation of claim 114, wherein the second antibody comprises an HCVR of SEQ ID NO: 20 and an LCVR of SEQ ID NO: 28.

116. The pharmaceutical formulation of claim 114, wherein the second antibody comprises a heavy chain of SEQ ID NO: 35 and a light chain of SEQ ID NO: 36.

117. The pharmaceutical formulation of any one of claims 107-109, wherein the third antibody comprises an HCDR1 of SEQ ID NO: 40, an HCDR2 of SEQ ID NO: 42, an HCDR3 of SEQ ID NO: 44, an LCDR1 of SEQ ID NO: 48, an LCDR2 of SEQ ID NO: 50, and an LCDR3 of SEQ ID NO: 52.

118. The pharmaceutical formulation of claim 117, wherein the third antibody comprises an HCVR of SEQ ID NO: 38 and an LCVR of SEQ ID NO: 46.

119. The pharmaceutical formulation of claim 117, wherein the third antibody comprises a heavy chain of SEQ ID NO: 53 and a light chain of SEQ ID NO: 54.

120. The pharmaceutical formulation of any one of claims 107-109, wherein said formulation is contained in a container.

121. The pharmaceutical formulation of claim 120, wherein the container is a vial and the total volume of the pharmaceutical formulation contained in each vial is $14.5 \text{ mL} \pm 0.5 \text{ mL}$.

122. The pharmaceutical formulation of claim 121, wherein the pharmaceutical formulation contained in each vial comprises $0.74 \text{ mg/mL} \pm 0.05 \text{ mg/mL}$ of L-histidine, $1.09 \text{ mg/mL} \pm 0.05 \text{ mg/mL}$ of L-histidine monohydrochloride monohydrate, $1 \text{ mg/mL} \pm 0.05 \text{ mg/mL}$ of polysorbate 80, $100 \text{ mg/mL} \pm 5 \text{ mg/mL}$ of sucrose and water.

123. The pharmaceutical formulation of any one of claims 107-109, formulated for intravenous administration.

124. The pharmaceutical formulation of any one of claims 107-109, wherein the first antibody, the second antibody and the third antibody in the formulation are at a 1 :1 :1 ratio and the final dose of the three antibodies to be administered is 150 mg/kg $\pm$ 15mg/kg of body weight.

125. The pharmaceutical formulation of claim 123, wherein the formulation is diluted in a PVC intravenous (IV) bags containing 0.9% Sodium Chloride, 5% Dextrose or Lactated Ringer's prior to the intravenous administration.

126. The pharmaceutical formulation of claim 125, wherein the final concentration of each of the first antibody, the second antibody and the third antibody after dilution is between 2 mg/mL to 30 mg/mL.

127. The pharmaceutical formulation of claim 125 or claim 126, wherein the duration of the intravenous administration of the diluted formulation is between 2 hours to 4 hours.

128. A stable liquid pharmaceutical formulation at a volume of 14.5mL comprising:

(a) 16.67 mg/mL of a first antibody comprising an HCDR1 of SEQ ID NO: 4, an HCDR2 of SEQ ID NO: 6, an HCDR3 of SEQ ID NO: 8, an LCDR1 of SEQ ID NO: 12, an LCDR2 of SEQ ID NO: 14, and an LCDR3 of SEQ ID NO: 16,

(b) 16.67 mg/mL of a second antibody comprising an HCDR1 of SEQ ID NO: 22, an HCDR2 of SEQ ID NO: 24, an HCDR3 of SEQ ID NO: 26, an LCDR1 of SEQ ID NO: 30, an LCDR2 of SEQ ID NO: 32, and an LCDR3 of SEQ ID NO: 34,

(c) 16.67 mg/mL of a third antibody comprising an HCDR1 of SEQ ID NO: 40, an HCDR2 of SEQ ID NO: 42, an HCDR3 of SEQ ID NO: 44, an LCDR1 of SEQ ID NO: 48, an LCDR2 of SEQ ID NO: 50, and an LCDR3 of SEQ ID NO: 52,

(d) sucrose at a concentration of no more than 20% $\pm$ 4% w/v;

(e) a buffer comprising histidine at a concentration from 5 mM $\pm$ 1 mM to 20 mM $\pm$ 4 mM;
and

(f) an organic cosolvent comprising polysorbate 80 at a concentration from 0.01% $\pm$ 0.005% to 0.5% $\pm$ 0.25% w/v.

129. The stable liquid pharmaceutical formulation of claim 128, wherein the first antibody comprises an HCVR of SEQ ID NO: 2 and an LCVR of SEQ ID NO: 10, the second antibody comprises an HCVR of SEQ ID NO: 20 and an LCVR of SEQ ID NO: 28,

and the third antibody comprises an HCVR of SEQ ID NO: 38 and an LCVR of SEQ ID NO: 46.

130. The stable liquid pharmaceutical formulation of claim 128, wherein the first antibody comprises a heavy chain of SEQ ID NO: 17 and a light chain of SEQ ID NO: 18, the second antibody comprises a heavy chain of SEQ ID NO: 35 and a light chain of SEQ ID NO: 36; and the third antibody comprises a heavy chain of SEQ ID NO: 53 and a light chain of SEQ ID NO: 54.

131. The stable liquid pharmaceutical formulation of any one of claims 128-130, further comprising:

- (d) 0.74 mg/mL of L-histidine,
- (e) 1.09 mg/mL of L-histidine monohydrochloride monohydrate,
- (f) 1 mg/mL of polysorbate 80,
- (g) 100 mg/mL of sucrose, and
- (h) water;

wherein the formulation has a pH of 6.0.

132. A stable liquid pharmaceutical formulation at a volume of 14.5mL comprising:

(a) 33.33 mg/mL of a first antibody comprising an HCDR1 of SEQ ID NO: 4, an HCDR2 of SEQ ID NO: 6, an HCDR3 of SEQ ID NO: 8, an LCDR1 of SEQ ID NO: 12, an LCDR2 of SEQ ID NO: 14, and an LCDR3 of SEQ ID NO: 16,

(b) 33.33 mg/mL of a second antibody comprising an HCDR1 of SEQ ID NO: 22, an HCDR2 of SEQ ID NO: 24, an HCDR3 of SEQ ID NO: 26, an LCDR1 of SEQ ID NO: 30, an LCDR2 of SEQ ID NO: 32, and an LCDR3 of SEQ ID NO: 34,

(c) 33.33 mg/mL of a third antibody comprising an HCDR1 of SEQ ID NO: 40, an HCDR2 of SEQ ID NO: 42, an HCDR3 of SEQ ID NO: 44, an LCDR1 of SEQ ID NO: 48, an LCDR2 of SEQ ID NO: 50, and an LCDR3 of SEQ ID NO: 52,

(d) sucrose at a concentration of no more than 20% $\pm$ 4% w/v;

(e) a buffer comprising histidine at a concentration from 5 mM $\pm$ 1 mM to 20 mM $\pm$ 4 mM; and

(f) an organic cosolvent comprising polysorbate 80 at a concentration from 0.01% $\pm$ 0.005% to 0.5% $\pm$ 0.25% w/v.

133. The stable liquid pharmaceutical formulation of claim 132, wherein the first antibody comprises an HCVR of SEQ ID NO: 2 and an LCVR of SEQ ID NO: 10; the second antibody comprises an HCVR of SEQ ID NO: 20 and an LCVR of SEQ ID NO: 28, and the third antibody comprises an HCVR of SEQ ID NO: 38 and an LCVR of SEQ ID NO: 46.

134. The stable liquid pharmaceutical formulation of claim 132, wherein the first antibody comprises a heavy chain of SEQ ID NO: 17 and a light chain of SEQ ID NO: 18; the second antibody comprises a heavy chain of SEQ ID NO: 35 and a light chain of SEQ ID NO: 36; and the third antibody comprises a heavy chain of SEQ ID NO: 53 and a light chain of SEQ ID NO: 54.

135. The stable liquid pharmaceutical formulation of any one of claims 132-134, further comprising:

- (d) 0.74 mg/mL of L-histidine,
- (e) 1.09 mg/mL of L-histidine monohydrochloride monohydrate,
- (f) 1 mg/mL of polysorbate 80,
- (g) 100 mg/mL of sucrose, and
- (h) water;

wherein the formulation has a pH of 6.0.