

We claim:

1. An isolated recombinant antibody or antigen-binding fragment thereof that specifically binds to a coronavirus spike protein (CoV-S), wherein the antibody has one or more of the following characteristics:

(a) binds to CoV-S with an EC_{50} of less than about 10^{-8} M;

(b) demonstrates an increase in survival in a coronavirus-infected animal after the antibody is to be administered to said coronavirus-infected animal, as compared to a comparable coronavirus-infected animal without the antibody to be administered; and/or

(c) comprises three heavy chain complementarity determining regions (CDRs) (HCDR1, HCDR2, and HCDR3) contained within a heavy chain variable region (HCVR) comprising an amino acid sequence having at least about 90% sequence identity to an HCVR of Table 4; and three light chain CDRs (LCDR1, LCDR2, and LCDR3) contained within a light chain variable region (LCVR) comprising an amino acid sequence having at least about 90% sequence identity to an LCVR Table 4.

2. The antibody or antigen-binding fragment of claim 1, wherein:

(A) the antibody or antigen-binding fragment comprises:

(a) a heavy chain variable region comprising the HCDR1, HCDR2, and HCDR3 of an antibody of Table 4; and/or

(b) a light chain variable region comprising the LCDR1, LCDR2, and LCDR3 of an antibody of Table 4; or

(B) the antibody or antigen-binding fragment comprises:

(a) a heavy chain immunoglobulin variable region comprising an amino acid sequence having at least 90% amino acid sequence identity to an HCVR sequence of Table 4; and/or

(b) a light chain immunoglobulin variable region comprising an amino acid sequence having at least 90% amino acid sequence identity to an LCVR sequence of Table 4;

(C) the antibody or antigen-binding fragment comprises the HCDR1, HCDR2, HCDR3, LCDR1, LCDR2, and LCDR3 of a single antibody of Table 4; or

(D) the antibody or antigen-binding fragment comprises an immunoglobulin that comprises the HCVR and the LCVR of a single antibody of Table 4; or

- (E) the antibody or antigen-binding fragment comprises:
- (a) an immunoglobulin heavy chain variable region comprising the HCDR1, HCDR2, and HCDR3 of an antibody of Table 4; and/or
 - (b) an immunoglobulin light chain variable region comprising the LCDR1, LCDR2, and LCDR3 of an antibody of Table 4.
3. The antibody or antigen-binding fragment of claim 1, comprising:
- (a) a heavy chain variable region (HCVR) comprising three complementarity determining regions (CDRs) contained within the amino acid sequence of SEQ ID NO: 212;
 - (b) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 214, 216 and 218, respectively;
 - (c) a HCVR comprising the amino acid sequence of SEQ ID NO: 212;
 - (d) a light chain variable region (LCVR) comprising three CDRs contained within the amino acid sequence of SEQ ID NO: 220;
 - (e) a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 222, 126 and 224, respectively;
 - (f) a LCVR comprising the amino acid sequence of SEQ ID NO: 220;
 - (g) a heavy chain (HC) comprising the amino acid sequence of SEQ ID NO: 226;
 - (h) a light chain (LC) comprising the amino acid sequence of SEQ ID NO: 228;
 - (i) a HCVR/LCVR pair comprising the CDRs contained within the amino acid sequences of SEQ ID NOs: 212/222, respectively;
 - (j) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 214, 216 and 218, respectively, and a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 222, 126 and 224, respectively;
 - (k) a HCVR comprising the amino acid sequence of SEQ ID NO: 212 and a LCVR comprising the amino acid sequence of SEQ ID NO: 220; or
 - (l) a HC comprising the amino acid sequence of SEQ ID NO: 226 and a LC comprising the amino acid sequence of SEQ ID NO: 228.
4. The antibody or antigen-binding fragment of claim 1, comprising:

- (a) a heavy chain variable region (HCVR) comprising three complementarity determining regions (CDRs) contained within the amino acid sequence of SEQ ID NO: 362;
- (b) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 364, 366 and 368, respectively;
- (c) a HCVR comprising the amino acid sequence of SEQ ID NO: 362;
- (d) a light chain variable region (LCVR) comprising three CDRs contained within the amino acid sequence of SEQ ID NO: 370;
- (e) a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 372, 106 and 374, respectively;
- (f) a LCVR comprising the amino acid sequence of SEQ ID NO: 370;
- (g) a heavy chain (HC) comprising the amino acid sequence of SEQ ID NO: 376;
- (h) a HC comprising the amino acid sequence of SEQ ID NO: 1077;
- (i) a light chain (LC) comprising the amino acid sequence of SEQ ID NO: 378;
- (j) a HCVR/LCVR pair comprising the CDRs contained within the amino acid sequences of SEQ ID NOs: 362/370, respectively;
- (k) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 364, 366 and 368, respectively, and a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 372, 106 and 374 respectively;
- (l) a HCVR comprising the amino acid sequence of SEQ ID NO: 362 and a LCVR comprising the amino acid sequence of SEQ ID NO: 370;
- (m) a HC comprising the amino acid sequence of SEQ ID NO: 376 and a LC comprising the amino acid sequence of SEQ ID NO: 378; or
- (n) a HC comprising the amino acid sequence of SEQ ID NO: 1077 and a LC comprising the amino acid sequence of SEQ ID NO: 378.

5. The antibody or antigen-binding fragment of claim 1, comprising:

- (a) a heavy chain variable region (HCVR) comprising three complementarity determining regions (CDRs) contained within the amino acid sequence of SEQ ID NO: 493;
- (b) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 495, 497 and 499, respectively;

- (c) a HCVR comprising the amino acid sequence of SEQ ID NO: 493;
- (d) a light chain variable region (LCVR) comprising three CDRs contained within the amino acid sequence of SEQ ID NO: 501;
- (e) a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 503, 505 and 507, respectively;
- (f) a LCVR comprising the amino acid sequence of SEQ ID NO: 501;
- (g) a heavy chain (HC) comprising the amino acid sequence of SEQ ID NO: 509;
- (h) a HC comprising the amino acid sequence of SEQ ID NO: 1075;
- (i) a light chain (LC) comprising the amino acid sequence of SEQ ID NO: 511;
- (j) a HCVR/LCVR pair comprising the CDRs contained within the amino acid sequences of SEQ ID NOs: 493/501, respectively;
- (k) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 495, 497 and 3499 respectively, and a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 503, 505 and 507 respectively;
- (l) a HCVR comprising the amino acid sequence of SEQ ID NO: 493 and a LCVR comprising the amino acid sequence of SEQ ID NO: 501;
- (m) a HC comprising the amino acid sequence of SEQ ID NO: 509 and a LC comprising the amino acid sequence of SEQ ID NO: 511; or
- (n) a HC comprising the amino acid sequence of SEQ ID NO: 1075 and a LC comprising the amino acid sequence of SEQ ID NO: 511.

6. The antibody or antigen-binding fragment of claim 1, comprising:

- (a) a heavy chain variable region (HCVR) comprising three complementarity determining regions (CDRs) contained within the amino acid sequence of SEQ ID NO: 887;
- (b) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 889, 891 and 893, respectively;
- (c) a HCVR comprising the amino acid sequence of SEQ ID NO: 887;
- (d) a light chain variable region (LCVR) comprising three CDRs contained within the amino acid sequence of SEQ ID NO: 895;

(e) a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 897, 164 and 899, respectively;

(f) a LCVR comprising the amino acid sequence of SEQ ID NO: 895;

(g) a heavy chain (HC) comprising the amino acid sequence of SEQ ID NO: 901;

(h) a light chain (LC) comprising the amino acid sequence of SEQ ID NO: 903;

(i) a HCVR/LCVR pair comprising the CDRs contained within the amino acid sequences of SEQ ID NOs: 887/895, respectively;

(j) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 889, 891 and 893, respectively, and a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 897, 164 and 899, respectively;

(k) a HCVR comprising the amino acid sequence of SEQ ID NO: 887 and a LCVR comprising the amino acid sequence of SEQ ID NO: 895; or

(l) a HC comprising the amino acid sequence of SEQ ID NO: 901 and a LC comprising the amino acid sequence of SEQ ID NO: 903.

7. The antibody or antigen-binding fragment of claim 1, comprising:

(a) a heavy chain variable region (HCVR) comprising three complementarity determining regions (CDRs) contained within the amino acid sequence of SEQ ID NO: 270;

(b) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 272, 274 and 276, respectively;

(c) a HCVR comprising the amino acid sequence of SEQ ID NO: 270;

(d) a light chain variable region (LCVR) comprising three CDRs contained within the amino acid sequence of SEQ ID NO: 278;

(e) a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 280, 106 and 282, respectively;

(f) a LCVR comprising the amino acid sequence of SEQ ID NO: 278;

(g) a heavy chain (HC) comprising the amino acid sequence of SEQ ID NO: 284;

(h) a light chain (LC) comprising the amino acid sequence of SEQ ID NO: 286;

(i) a HCVR/LCVR pair comprising the CDRs contained within the amino acid sequences of SEQ ID NOs: 270/278, respectively;

(j) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 272, 274 and 276, respectively, and a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 280, 106 and 282, respectively;

(k) a HCVR comprising the amino acid sequence of SEQ ID NO: 270 and a LCVR comprising the amino acid sequence of SEQ ID NO: 278; or

(l) a HC comprising the amino acid sequence of SEQ ID NO: 284 and a LC comprising the amino acid sequence of SEQ ID NO: 286.

8. An antibody or antigen-binding fragment thereof:

(a) that competes with the antibody or antigen-binding fragment of any one of claims 1-7 for binding to CoV-S; or

(b) that binds to the same epitope as, or to an overlapping epitope on, CoV-S as the antibody or antigen-binding fragment of any one of claims 1-7.

9. The antibody or antigen-binding fragment of any one of claims 1-8:

(a) which is multispecific;

(b) which is a recombinant antibody;

(c) which comprises an immunoglobulin constant region;

(e) which comprises an immunoglobulin constant region that is an IgG1 constant region; or

(e) which comprises one or more of the following properties: (i) inhibits growth of coronavirus; (ii) binds to the surface of a coronavirus; (iii) limits spread of coronavirus infection of cells *in vitro*; and (iv) protects mice engineered to express the human ACE2 or TMPRSS2 protein from death and/or weight loss caused by coronavirus infection; and/or

(f) wherein said CoV-S is SARS-CoV-2-S.

10. A complex comprising an antibody or antigen-binding fragment of any one of claims 1-9 bound to a CoV-S polypeptide, optionally wherein said CoV-S is SARS-CoV-2-S.

11. A polypeptide comprising:

(a) HCDR1, HCDR2, and HCDR3 of an HCVR domain of an antibody or antigen-binding fragment that comprises an HCVR amino acid sequence set forth in Table 4; or

(b) LCDR1, LCDR2, and LCDR3 of an LCVR domain of an immunoglobulin chain that comprises an LCVR amino acid sequence set forth in Table 4.

12. A polynucleotide encoding:
- (a) the polypeptide of claim 11;
 - (b) an antibody or antigen-binding fragment thereof of any one of claims 1-9;
 - (c) a HCVR comprising the CDR sequences contained in a HCVR of Table 4;
 - (d) a LCVR comprising the CDR sequences contained in a LCVR of Table 4;
 - (e) a HCVR comprising HCDR1, HCDR2 and HCDR3 sequences as set forth for an antibody in Table 4;
 - (f) a LCVR comprising LCDR1, LCDR2 and LCDR3 sequences as set forth for an antibody in Table 4;
 - (g) a HCVR and a LCVR comprising CDR sequences contained in an HCVR/LCVR pair of Table 4;
 - (h) a HCVR and a LCVR comprising the HCDR1, HCDR2, HCDR3, LCDR1, LCDR2 and LCDR3 sequences, respectively, as set forth for an antibody in Table 4;
 - (i) a HCVR comprising the HCVR sequence of an antibody of Table 4;
 - (j) a LCVR comprising the LCVR sequence of an antibody of Table 4;
 - (k) a HCVR and a LCVR comprising the HCVR and LCVR sequences, respectively, of an antibody of Table 4;
 - (l) a heavy chain (HC) comprising the HC sequence of an antibody of Table 4;
 - (m) a light chain (LC) comprising the LC sequence of an antibody of Table 4; or
 - (n) a heavy chain (HC) and a light chain (LC) comprising the HC and LC sequences, respectively, of an antibody of Table 4.

13. A vector comprising the polynucleotide of claim 12.

14. A host cell comprising the antibody or antigen-binding fragment of any one of claims 1-9, or the polypeptide of claim 11, or the polynucleotide of claim 12, or the vector of claim 13.

15. A pair of polynucleotides, wherein:

- (a) the first polynucleotide encodes:

(i) a HCVR comprising the CDR sequences contained in a HCVR of an antibody of Table 4;

(ii) a HCVR comprising the HCDR1, HCDR2 and HCDR3 sequences as set forth for an antibody in Table 4;

(iii) a HCVR comprising the HCVR sequence of an antibody of Table 4; or

(iv) a heavy chain (HC) comprising the HC sequence of an antibody of Table 4; and

(b) the second polynucleotide encodes:

(i) a LCVR comprising the CDR sequences contained in a LCVR of an antibody of Table 4;

(ii) a LCVR comprising the LCDR1, LCDR2 and LCDR3 sequences as set forth for an antibody in Table 4;

(iii) a LCVR comprising the LCVR sequence of an antibody of Table 4; or

(iv) a light chain (LC) comprising the LC sequence of an antibody of Table 4.

16. The pair of polynucleotides of claim 15, wherein:

(a) the first polynucleotide encodes a HCVR comprising the CDRs contained in a HCVR comprising the amino acid sequence of SEQ ID NO: 212, and the second polynucleotide encodes a LCVR comprising the CDRs contained in a LCVR comprising the amino acid sequence of SEQ ID NO: 220;

(b) the first polynucleotide encodes a HCVR comprising the HCDR1, HCDR2 and HCDR3 amino acid sequences of SEQ ID NOs: 214, 216 and 218, respectively, and the second polynucleotide encodes a LCVR comprising the LCDR1, LCDR2 and LCDR3 amino acid sequences of SEQ ID NOs: 222, 226 and 224, respectively;

(c) the first polynucleotide encodes a HCVR comprising the amino acid sequence of SEQ ID NO: 212, and the second polynucleotide encodes a LCVR comprising the amino acid sequence of SEQ ID NO: 220; or

(d) the first polynucleotide encodes a HC comprising the amino acid sequence of SEQ ID NO: 226, and the second polynucleotide encodes a LC comprising the amino acid sequence of SEQ ID NO: 228.

17. The pair of polynucleotides of claim 15, wherein:

(a) the first polynucleotide encodes a HCVR comprising the CDRs contained in a HCVR comprising the amino acid sequence of SEQ ID NO: 362, and the second polynucleotide encodes a LCVR comprising the CDRs contained in a LCVR comprising the amino acid sequence of SEQ ID NO: 370;

(b) the first polynucleotide encodes a HCVR comprising the HCDR1, HCDR2 and HCDR2 amino acid sequences of SEQ ID NOs: 364, 366 and 368, respectively, and the second polynucleotide encodes a LCVR comprising the LCDR1, LCDR2 and LCDR3 amino acid sequences of SEQ ID NOs: 372, 106 and 374, respectively;

(c) the first polynucleotide encodes a HCVR comprising the amino acid sequence of SEQ ID NO: 362, and the second polynucleotide encodes a LCVR comprising the amino acid sequence of SEQ ID NO: 370;

(d) the first polynucleotide encodes a HC comprising the amino acid sequence of SEQ ID NO: 376, and the second polynucleotide encodes a LC comprising the amino acid sequence of SEQ ID NO: 378; or

(e) the first polynucleotide encodes a HC comprising the amino acid sequence of SEQ ID NO: 1077, and the second polynucleotide encodes a LC comprising the amino acid sequence of SEQ ID NO: 378.

18. The pair of polynucleotides of claim 15, wherein:

(a) the first polynucleotide encodes a HCVR comprising the CDRs contained in a HCVR comprising the amino acid sequence of SEQ ID NO: 493, and the second polynucleotide encodes a LCVR comprising the CDRs contained in a LCVR comprising the amino acid sequence of SEQ ID NO: 501;

(b) the first polynucleotide encodes a HCVR comprising the HCDR1, HCDR2 and HCDR2 amino acid sequences of SEQ ID NOs: 495, 497 and 499, respectively, and the second polynucleotide encodes a LCVR comprising the LCDR1, LCDR2 and LCDR3 amino acid sequences of SEQ ID NOs: 503, 505 and 507, respectively;

(c) the first polynucleotide encodes a HCVR comprising the amino acid sequence of SEQ ID NO: 493, and the second polynucleotide encodes a LCVR comprising the amino acid sequence of SEQ ID NO: 501;

(d) the first polynucleotide encodes a HC comprising the amino acid sequence of SEQ ID NO: 509, and the second polynucleotide encodes a LC comprising the amino acid sequence of SEQ ID NO: 511; or

(e) the first polynucleotide encodes a HC comprising the amino acid sequence of SEQ ID NO: 1075, and the second polynucleotide encodes a LC comprising the amino acid sequence of SEQ ID NO: 511.

19. The pair of polynucleotides of claim 15, wherein:

(a) the first polynucleotide encodes a HCVR comprising the CDRs contained in a HCVR comprising the amino acid sequence of SEQ ID NO: 887, and the second polynucleotide encodes a LCVR comprising the CDRs contained in a LCVR comprising the amino acid sequence of SEQ ID NO: 895;

(b) the first polynucleotide encodes a HCVR comprising the HCDR1, HCDR2 and HCDR2 amino acid sequences of SEQ ID NOs: 889, 891 and 893, respectively, and the second polynucleotide encodes a LCVR comprising the LCDR1, LCDR2 and LCDR3 amino acid sequences of SEQ ID NOs: 897, 164 and 899, respectively;

(c) the first polynucleotide encodes a HCVR comprising the amino acid sequence of SEQ ID NO: 887, and the second polynucleotide encodes a LCVR comprising the amino acid sequence of SEQ ID NO: 895; or

(d) the first polynucleotide encodes a HC comprising the amino acid sequence of SEQ ID NO: 901, and the second polynucleotide encodes a LC comprising the amino acid sequence of SEQ ID NO: 903.

20. A pair of vectors comprising, respectively, the first and second polynucleotides of any one of claims 15-19.

21. A host cell comprising the pair of vectors of claim 20.

22. A method for making an antibody or antigen-binding fragment of any one of claims 1-9, wherein:

(a) one or more polynucleotides encoding said antibody or antigen-binding fragment is to be introduced into a host cell;

(b) the host cell is to be cultured under conditions favorable to expression of the one or more polynucleotides; and

(c) optionally, the antibody or antigen-binding fragment is to be isolated from the host cell and/or a medium in which the host cell is grown.

23. The method of claim 22, wherein:

(a) the host cell is a Chinese hamster ovary cell; and/or

(b) the one or more polynucleotides is one or more polynucleotides according to claim 12, or the pair of polynucleotides according to any one of claims 15-19.

24. An antibody or antigen-binding fragment which is a product of the method of any one of claim 22 or 23.

25. A composition, pharmaceutical composition, or kit comprising the antibody or antigen-binding fragment of any one of claims 1-9 and 24, optionally with a pharmaceutically acceptable carrier, and optionally in association with a further therapeutic agent.

26. The composition, pharmaceutical composition, or kit of claim 25, wherein:

(a) the further therapeutic agent is an anti-viral drug or a vaccine;

(b) the further therapeutic agent is selected from the group consisting of: an anti-inflammatory agent, an antimalarial agent, an antibody or antigen-binding fragment thereof that specifically binds TMPRSS2, and an antibody or antigen-binding fragment thereof that specifically binds to CoV-S;

(c) the further therapeutic agent is an antimalarial agent that is chloroquine or hydroxychloroquine;

(d) the further therapeutic agent is an anti-inflammatory agent that is an antibody, optionally wherein said antibody is sarilumab, tocilizumab or gimsilumab, and/or said antibody or antigen-binding fragment that specifically binds to CoV-S is casirivimab or imdevimab;

(e) the further therapeutic agent is an antibody or antigen-binding fragment thereof that binds a SARS-CoV-2 spike protein comprising the amino acid sequence set forth in SEQ ID NO: 1008; and/or

(f) the antibody or antigen-binding fragment comprises the HCDR1, HCDR2, HCDR3, LCDR1, LCDR2, and LCDR3 sequences of a second antibody of Table 4.

27. A vessel or injection device comprising the antibody or antigen-binding fragment of any one of claims 1-9, or the composition or pharmaceutical composition of claim 25 or 26.

28. Use of the antibody or antigen-binding fragment of any one of claims 1-9 and 24 in the manufacture of a medicament for treating or preventing infection with a coronavirus, in a subject in need thereof.

29. The use of claim 28, wherein:

(a) said coronavirus is selected from the group consisting of SARS-CoV-2, SARS-CoV, and MERS-CoV;

(b) the medicament is to be used with one or more further therapeutic agents;

(c) the medicament is to be used with one or more further therapeutic agents, wherein the one or more further therapeutic agents is an anti-viral drug or a vaccine;

(d) the medicament is to be used with one or more further therapeutic agents, wherein the one or more further therapeutic agents is selected from the group consisting of: an anti-inflammatory agent, an antimalarial agent, an antibody or antigen-binding fragment thereof that specifically binds TMPRSS2, and an antibody or antigen-binding fragment thereof that specifically binds to CoV-S, optionally wherein said antimalarial agent is chloroquine or hydroxychloroquine, and/or optionally wherein said anti-inflammatory agent is an antibody, optionally wherein said antibody is sarilumab, tocilizumab, or gimsilumab, and/or said antibody or antigen-binding fragment that specifically binds to CoV-S is casirivimab or imdevimab; or

(e) the antibody or antigen-binding fragment comprises the HCDR1, HCDR2, HCDR3, LCDR1, LCDR2, and LCDR3 sequences of a second antibody of Table 4.

30. Use of an antibody or antigen-binding fragment of any one of claims 1-9 and 24 in the manufacture of a medicament for treating or preventing infection with a coronavirus, in a subject in need thereof, wherein the medicament is formulated to be injected into the body of the subject, optionally wherein the antibody or antigen-binding fragment is formulated to be injected into the body of the subject subcutaneously, intravenously or intramuscularly.

31. The antibody or antigen-binding fragment, composition, kit, complex, polypeptide, polynucleotide, vector, cell, or use of any of the above claims, wherein said antibody or antigen-binding binding fragment comprises a VH3-66 or Vk1-33 variable domain sequence.

32. A pharmaceutical composition comprising:

- (a) the antibody or antigen-binding fragment of claim 3;
- (b) the antibody or antigen-binding fragment of claim 7; and
- (c) optionally a pharmaceutically acceptable carrier or diluent.

33. A pharmaceutical composition comprising:

- (A) the antibody or antigen-binding fragment of claim 6;
- (B) an antibody or antigen-binding fragment comprising:
 - (a) a heavy chain variable region (HCVR) comprising three complementarity determining regions (CDRs) contained within the amino acid sequence of SEQ ID NO: 1030;
 - (b) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 1032, 1034 and 1036, respectively;
 - (c) a HCVR comprising the amino acid sequence of SEQ ID NO: 1030;
 - (d) a light chain variable region (LCVR) comprising three CDRs contained within the amino acid sequence of SEQ ID NO: 1038;
 - (e) a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 1040, 1042 and 1044, respectively;
 - (f) a LCVR comprising the amino acid sequence of SEQ ID NO: 1038;
 - (g) a heavy chain (HC) comprising the amino acid sequence of SEQ ID NO: 1046;
 - (h) a light chain (LC) comprising the amino acid sequence of SEQ ID NO: 1048;
 - (i) a HCVR/LCVR pair comprising the CDRs contained within the amino acid sequences of SEQ ID NOs: 1030/1038, respectively;
 - (j) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 1032, 1034 and 1036, respectively, and a LCVR comprising

LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 1040, 1042 and 1044, respectively;

(k) a HCVR comprising the amino acid sequence of SEQ ID NO: 1030 and a LCVR comprising the amino acid sequence of SEQ ID NO: 1038; or

(l) a HC comprising the amino acid sequence of SEQ ID NO: 1046 and a LC comprising the amino acid sequence of SEQ ID NO: 1048; and

(C) optionally a pharmaceutically acceptable carrier or diluent.

34. The pharmaceutical composition of claim 33, wherein said pharmaceutical composition further comprises a third isolated antibody or antigen-binding fragment.

35. The pharmaceutical composition of claim 34, wherein the third isolated antibody or antigen-binding fragment comprises:

(a) a heavy chain variable region (HCVR) comprising three complementarity determining regions (CDRs) contained within the amino acid sequence of SEQ ID NO: 1010;

(b) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 1012, 1014 and 1016, respectively;

(c) a HCVR comprising the amino acid sequence of SEQ ID NO: 1010;

(d) a light chain variable region (LCVR) comprising three CDRs contained within the amino acid sequence of SEQ ID NO: 1018;

(e) a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 1020, 1022 and 1024, respectively;

(f) a LCVR comprising the amino acid sequence of SEQ ID NO: 1018;

(g) a heavy chain (HC) comprising the amino acid sequence of SEQ ID NO: 1026;

(h) a light chain (LC) comprising the amino acid sequence of SEQ ID NO: 1028;

(i) a HCVR/LCVR pair comprising the CDRs contained within the amino acid sequences of SEQ ID NOs: 1010/1018, respectively;

(j) a HCVR comprising HCDR1, HCDR2 and HCDR3 comprising the amino acid sequences of SEQ ID NOs: 1012, 1014 and 1016, respectively, and a LCVR comprising LCDR1, LCDR2 and LCDR3 comprising the amino acid sequences of SEQ ID NOs: 1020, 1022 and 1024, respectively;

(k) a HCVR comprising the amino acid sequence of SEQ ID NO: 1010 and a LCVR comprising the amino acid sequence of SEQ ID NO: 1018; or

(l) a HC comprising the amino acid sequence of SEQ ID NO: 1026 and a LC comprising the amino acid sequence of SEQ ID NO: 1028.

36. Use of a therapeutically effective amount of an antibody or antigen binding fragment thereof in the manufacture of a medicament for treating or preventing infection with an Omicron variant SARS-CoV-2 in a subject in need thereof, wherein the antibody or antigen binding fragment comprises three heavy chain complementarity determining regions (CDRs) (HCDR1, HCDR2, and HCDR3) contained within a heavy chain variable region (HCVR) comprising an amino acid sequence having at least about 90% sequence identity to an HCVR of Table 4; and three light chain CDRs (LCDR1, LCDR2, and LCDR3) contained within a light chain variable region (LCVR) comprising an amino acid sequence having at least about 90% sequence identity to an LCVR Table 4.

37. The use of claim 36, wherein:

(a) said preventing comprises pre-exposure prophylaxis;

(b) said preventing comprises post-exposure prophylaxis;

(c) said antibody or antigen-binding fragment comprises (i) an immunoglobulin heavy chain variable region comprising the HCDR1, HCDR2, and HCDR3 of an antibody of Table 4; and/or (ii) an immunoglobulin light chain variable region comprising the LCDR1, LCDR2, and LCDR3 of an antibody of Table 4;

(d) said antibody or antigen-binding fragment comprises the HCDR1, HCDR2, and HCDR3 of an antibody of Table 4 and the LCDR1, LCDR2, and LCDR3 of said antibody of Table 4;

(e) the medicament is to be used with one or more further therapeutic agents, (i) optionally wherein the one or more further therapeutic agents is an anti-viral drug or a vaccine, or (ii) optionally wherein the one or more further therapeutic agents is selected from the group consisting of: an anti-inflammatory agent, an antimalarial agent, an antibody or antigen-binding fragment thereof that specifically binds TMPRSS2, and an antibody or antigen-binding fragment thereof that specifically binds to CoV-S, optionally wherein said antimalarial agent is chloroquine or hydroxychloroquine, and/or optionally wherein said anti-inflammatory agent is an

antibody, optionally wherein said antibody is sarilumab, tocilizumab, or gimsilumab, and/or said antibody or antigen-binding fragment that specifically binds to CoV-S is casirivimab or imdevimab;

(f) the antibody or antigen-binding fragment comprises the HCDR1, HCDR2, HCDR3, LCDR1, LCDR2, and LCDR3 sequences of a second antibody of Table 4;

(g) the medicament is formulated to be administered by the antibody or antigen-binding fragment to be injected into the body of the subject; and/or

(h) the medicament is formulated to be injected into the body of the subject subcutaneously, intravenously or intramuscularly.

38. Use of a therapeutically effective amount of an antibody or antigen binding fragment thereof of claim 4 in the manufacture of a medicament for treating or preventing one or more COVID-19 symptoms resulting from infection with SARS-CoV-2, in a subject in need thereof.

39. The use of claim 38, wherein:

(a) the medicament is formulated to be injected, optionally wherein said injection is to be intravenous or subcutaneous;

(b) the medicament is formulated to be administered at a dosage of 300 mg of said antibody or antigen-binding fragment thereof;

(c) the medicament is formulated to be administered at a dosage of 600 mg of said antibody or antigen-binding fragment thereof;

(d) the medicament is formulated to be administered at a dosage of 1200 mg of said antibody or antigen-binding fragment thereof;

(e) the medicament is formulated to be administered in two doses of said antibody or antigen-binding fragment thereof, optionally wherein each of said two doses comprises 300 mg of said antibody or antigen-binding fragment thereof;

(f) the medicament is formulated to be administered in two doses of said antibody or antigen-binding fragment thereof, optionally wherein said two doses are to be administered 4 weeks apart, 5 weeks apart, 6 weeks apart, 7 weeks apart, 8 weeks apart, 9 weeks apart, 10 weeks apart, 11 weeks apart, 12 weeks apart, 13 weeks apart, 14 weeks apart, 15 weeks apart, or 16 weeks apart, optionally wherein said two doses are to be administered 8-16 weeks

apart, optionally wherein said two doses are to be administered 12 weeks apart, or optionally wherein said two doses are to be administered 8 weeks apart;

(g) the medicament is for reducing the viral load of SARS-CoV-2 in said subject;
and/or

(h) the medicament is to be administered prior to SARS-CoV-2 infection.

40. The antibody or antigen-binding fragment thereof of any one of claims 1-9 and 24 that neutralizes an omicron variant of SARS-CoV-2, optionally wherein the omicron variant is selected from BA.1, BA.1.1, BA.2, BA.2.12.1, BA.3, or BA.4/BA.5.