

CLAIMS

Listing of Claims

1. An antibody or antigen binding fragment thereof that binds CD30L, wherein the antibody or antigen binding fragment thereof comprises:
- (a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: - 712-723;
- (b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: - 724-735;
- (c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ Id NOs: -736-743;
- (d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: - 744-751;
- (e) CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: - 752-759; and/or
- (f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: - 760-765.
- 1.2. ~~The~~An antibody or antigen binding fragment thereof ~~that binds CD30L~~of claim 1, wherein the antibody or antigen binding fragment thereof comprises:
- (a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 100-139, 220-234, 465-489, and 628-641,~~and 712-723~~;
- (b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 140-179, 235-249, 490-499, 513-527, and 642-655,~~and 724-735~~;
- (c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID~~d~~ NOs: 180-219, 250-264, 528-552, and 656-669,~~and 736-743~~;
- (d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 300-339, 420-434, 553-577, and 670-683,~~and 744-751~~;
- ~~(e)~~ a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 340-379, 435-449, 578-602, and 684-697,~~and 752-759~~; and/or
- ~~(f)~~ a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 380-419, 450-464, 603-627, and 698-711,~~and 760-765~~.
3. The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises:

(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 720 and 721;

(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 732 and 733;

(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 740 and 741;

(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 748 and 749;

(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 756 and 757; and/or

(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 760 and 761.

4. The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises:

(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 115-119, and 629;

(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 155-159, and 643;

(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 195, 198-199, and 657;

(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 315, 318-319, and 671;

(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 355, 358-359, and 685; and/or

(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 395, 398, and 699.

5. The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises:

(a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 117; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 157; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 197; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 317; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 357; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 397.

6. The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises: (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 115; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 155; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 195; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 315; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 355; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 395.

7. The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises: (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 116; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 156; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 196; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 316; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 356; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 396.

8. The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises: (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 118; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 158; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 198; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 318; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 358; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 398.

9. The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises: (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 119; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 159; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 199; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 319; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 359; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 399.

10. The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises: (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 629; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 643; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 657; (d) a CDR-L1 comprising the amino acid sequence set forth in

SEQ ID NO: 671; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 685; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 699

~~2. The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 100-109, 628, 635, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 140-149, 642, 649, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 180-189, 656, 663, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 300-309, 670, 677, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 340-349, 684, 691, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID Nos: 380-389, 698, 705, and 760-765.~~

~~3. The antibody or antigen binding fragment thereof of claim 1 or 2, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 100-104;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 140-144;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 180-184;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 300-304;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 340-344; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 380-384.~~

~~4. The antibody or antigen binding fragment thereof of claim 1 or 2, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 105-109, 628, 635, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 145-149, 642, 649, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 185-189, 656, 663, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 305-309, 670, 677, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 345-349, 684, 691, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 385-389, 698, 705, and 760-765.~~

5.11. The antibody or antigen binding fragment thereof of any one of claims 1 to 42, wherein the antibody or antigen binding fragment thereof comprises comprising an immunoglobulin variable region heavy chain and an immunoglobulin variable region light chain, wherein:

(i) (a) ~~an~~the immunoglobulin variable region heavy chain (VH) comprisinges an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to any one of SEQ ID NOs: 1, ~~and~~ 2, 5, and 6; and/or

(b) ~~an~~the immunoglobulin variable region light chain (VL) comprisinges an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to any one of SEQ ID NOs: 3, ~~and~~ 4, 7, and 8; or

(ii) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 6; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 8.

6. — An antibody or antigen binding fragment thereof that binds CD30L, wherein the antibody or antigen binding fragment thereof binds to an epitope comprising one or more amino acids in CD30L selected from the group consisting of K16, S21, R30, K48, R63, and Y64, wherein the amino acids are numbered according to the amino acid sequence of CD30L as set forth in SEQ ID NO:34.

7. — The antibody or antigen binding fragment thereof of claim 6, wherein the antibody or antigen binding fragment thereof binds to an epitope comprising:

—— (i) any one amino acid in CD30L selected from the group consisting of K16, S21, R30, K48, R63, and Y64;

—— (ii) any two amino acids in CD30L selected from the group consisting of K16, S21,

R30, K48, R63, and Y64;

~~——(iii) any three amino acids in CD30L selected from the group consisting of K16, S21, R30, K48, R63, and Y64;~~

~~——(iv) any four amino acids in CD30L selected from the group consisting of K16, S21, R30, K48, R63, and Y64;~~

~~——(ii) any five amino acids in CD30L selected from the group consisting of K16, S21, R30, K48, R63, and Y64; or~~

~~——(ii) K16, S21, R30, K48, R63, and Y64 in CD30L;~~

~~——wherein the amino acids are numbered according to the amino acid sequence of CD30L as set forth in SEQ ID NO:34.~~

8. ~~——An antibody or antigen binding fragment thereof that binds CD30L, wherein the antibody or antigen binding fragment thereof binds to an epitope comprising K16 in CD30L, wherein the amino acids are numbered according to the amino acid sequence of CD30L as set forth in SEQ ID NO:34.~~

9. ~~——The antibody or antigen binding fragment thereof of claim 8, wherein the epitope further comprises S21 in CD30L, wherein the amino acids are numbered according to the amino acid sequence of CD30L as set forth in SEQ ID NO:34.~~

10. ~~——The antibody or antigen binding fragment thereof of claim 8 or 9, wherein the epitope further comprises R30 in CD30L, wherein the amino acids are numbered according to the amino acid sequence of CD30L as set forth in SEQ ID NO:34.~~

11. ~~——The antibody or antigen binding fragment thereof of any one of claims 8 to 10, wherein the epitope further comprises K48 in CD30L, wherein the amino acids are numbered according to the amino acid sequence of CD30L as set forth in SEQ ID NO:34.~~

12. ~~——The antibody or antigen binding fragment thereof of any one of claims 8 to 11, wherein the epitope further comprises R63 in CD30L, wherein the amino acids are numbered according to the amino acid sequence of CD30L as set forth in SEQ ID NO:34.~~

13. ~~——The antibody or antigen binding fragment thereof of any one of claims 8 to 12, wherein the epitope further comprises Y64 in CD30L, wherein the amino acids are numbered according to the amino acid sequence of CD30L as set forth in SEQ ID NO:34.~~

14. ~~——The antibody or antigen binding fragment thereof of any one of claims 1 and 6 to 13, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 110-119, 629, 636, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 150-159, 643, 650, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 190-199, 657, 664, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 310-319, 671, 678, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 350-359, 685, 692, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 390-399, 699, 706, and 760-765.~~

~~15. —The antibody or antigen binding fragment thereof of any one of claims 1 and 6 to 13, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 110-114;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 150-154;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 190-194;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 310-314;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 350-354; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 390-394.~~

~~16. —The antibody or antigen binding fragment thereof of any one of claims 1 and 6 to 13, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 115-119, 629, 636, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 155-159, 643, 650, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 195-199, 657, 664, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 315-319, 671, 678, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 355-359, 685, 692, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 395-399, 699, 706, and 760-765.~~

~~17. — The antibody or antigen binding fragment thereof of any one of claims 1, 6 to 13, and 14 to 16, comprising an immunoglobulin variable region heavy chain and an immunoglobulin variable region light chain, wherein:~~

~~(a) the immunoglobulin variable region heavy chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to any one of SEQ ID NOs: 5 and 6; and/or~~

~~(b) the immunoglobulin variable region light chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to any one of SEQ ID NOs: 7 and 8.~~

~~18. — The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 120-129, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 160-169, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 200-209, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 320-329, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 360-369, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 400-409, and 760-765.~~

~~19. — The antibody or antigen binding fragment thereof of claim 1 or 18, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 120-124;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 160-164;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 200-204;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 320-324;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 360-364; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 400-404.~~

20.—The antibody or antigen binding fragment thereof of claim 1 or 18, wherein the antibody or antigen binding fragment thereof comprises:

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 125-129, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 165-169, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 205-209, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 325-329, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 365-369, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 405-409, and 760-765.~~

21.—The antibody or antigen binding fragment thereof of any one of claims 1 and 18 to 20, comprising an immunoglobulin variable region heavy chain and an immunoglobulin variable region light chain, wherein:

~~(a) the immunoglobulin variable region heavy chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to any one of SEQ ID NOs: 9 and 10; and/or~~

~~(b) the immunoglobulin variable region light chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to any one of SEQ ID NOs: 11 and 12.~~

22.—The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises:

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 130-139, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 170-179, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 210-219, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 330-339, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 370-379, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 410-419, and 760-765.~~

~~23. — The antibody or antigen binding fragment thereof of claim 1 or 22, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 130-134;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 170-174;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 210-214;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 330-334;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 370-374; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 410-414.~~

~~24. — The antibody or antigen binding fragment thereof of claim 1 or 22, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 135-139, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 175-179, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 215-219, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 335-339, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 375-379, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 415-419, and 760-765.~~

~~25.—The antibody or antigen binding fragment thereof of any one of claims 1 and 22 to 24, comprising an immunoglobulin variable region heavy chain and an immunoglobulin variable region light chain, wherein:~~

~~(a) the immunoglobulin variable region heavy chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to any one of SEQ ID NOs: 13 and 14; and/or~~

~~(b) the immunoglobulin variable region light chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to any one of SEQ ID NOs: 15 and 16.~~

~~26.—The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 220-224, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 235-239, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 250-254, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 420-424, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 435-439, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 450-454, and 760-765.~~

~~27.—The antibody or antigen binding fragment thereof of claim 1 or 26, comprising an immunoglobulin variable region heavy chain and an immunoglobulin variable region light chain, wherein:~~

~~(a) the immunoglobulin variable region heavy chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 17; and/or~~

~~(b) the immunoglobulin variable region light chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 18.~~

~~28. —The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 225-229, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 240-244, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 255-259, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 425-429, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 440-444, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 455-459, and 760-765.~~

~~29. —The antibody or antigen binding fragment thereof of claim 1 or 28, comprising an immunoglobulin variable region heavy chain and an immunoglobulin variable region light chain, wherein:~~

~~(a) the immunoglobulin variable region heavy chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 19; and/or~~

~~(b) the immunoglobulin variable region light chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 20.~~

~~30. —The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises:~~

~~(a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 230-234, and 712-723;~~

~~(b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 245-249, and 724-735;~~

~~(c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 260-264, and 736-743;~~

~~(d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 430-434, and 744-751;~~

~~(e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 445-449, and 752-759; and/or~~

~~(f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 460-464, and 760-765.~~

31. — The antibody or antigen binding fragment thereof of claim 1 or 30, comprising an immunoglobulin variable region heavy chain and an immunoglobulin variable region light chain, wherein:

~~(a) the immunoglobulin variable region heavy chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 21; and/or~~

~~(b) the immunoglobulin variable region light chain comprises an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 22.~~

32. — The antibody or antigen binding fragment thereof of claim 1, wherein the antibody or antigen binding fragment thereof comprises:

~~(i) (a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 465-469, 631, 638, and 712-723; (b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 490-494, 645, 652, and 724-735; (c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 528-532, 659, 666, and 736-743; (d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 553-557, 673, 680, and 744-751; (e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 578-582, 687, 694, and 752-759; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 603-607, 701, 708, and 760-765;~~

~~(ii) (a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 470-474, 632, 639, and 712-723; (b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 495-499, 646, 653, and 724-735; (c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 533-537, 660, 667, and 736-743; (d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 558-562, 674, 681, and 744-751; (e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 583-587, 688, 695, and 752-759; and/or (f) a CDR-L3 comprising~~

the amino acid sequence set forth in any one of SEQ ID NOs: 608-612, 702, 709, and 760-765;

(iii) (a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 475-479, 633, 640, and 712-723; (b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 513-517, 647, 654, and 724-735; (c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 538-542, 661, 668, and 736-743; (d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 563-567, 675, 682, and 744-751; (e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 588-592, 689, 696, and 752-759; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 613-617, 703, 710, and 760-765;

(iv) (a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 480-484, 630, 637, and 712-723; (b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 518-522, 644, 651, and 724-735; (c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 543-547, 658, 665, and 736-743; (d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 568-572, 672, 679, and 744-751; (e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 593-597, 686, 693, and 752-759; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 618-622, 700, 707, and 760-765; or

(v) (a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 485-489, 634, 641, and 712-723; (b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 523-527, 648, 655, and 724-735; (c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 548-552, 662, 669, and 736-743; (d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 573-577, 676, 683, and 744-751; (e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 598-602, 690, 697, and 752-759; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 623-627, 704, 711, and 760-765.

33. —The antibody or antigen binding fragment thereof of any one of claims 1 and 6 to 13, wherein the antibody or antigen binding fragment thereof comprises:

(i) (a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 712-723; (b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 724-735; (c) a CDR-H3 comprising the amino acid sequence set forth in any one of

~~SEQ ID NOs: 736-743; (d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 744-751; (e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 752-759; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 760-765;~~

~~(ii) (a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 712, 714, 716, 718, 720, and 722; (b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 724, 726, 728, 730, 732, and 734; (c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 736, 738, 740, and 742; (d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 744, 746, 748, and 750; (e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 752, 754, 756, and 758; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 760, 762, and 764;~~

~~(iii) (a) a CDR-H1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 713, 715, 717, 719, 721, and 723; (b) a CDR-H2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 725, 727, 729, 731, 733, and 735; (c) a CDR-H3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 737, 739, 741, and 743; (d) a CDR-L1 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 745, 747, 749, and 751; (e) a CDR-L2 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 753, 755, 757, and 759; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in any one of SEQ ID NOs: 761, 763, and 765;~~

~~(iv) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 712; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 730; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 736; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 744; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 752; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 760;~~

~~(v) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 713; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 731; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 737; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 745; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 753; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 761; (vi)~~

~~(vi) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 712; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 724; (c) a CDR-H3~~

comprising the amino acid sequence set forth in SEQ ID NO: 736; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 744; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 752; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 760;

(vii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 713; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 725; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 737; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 745; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 753; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 761;

(viii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 714; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 726; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 736; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 744; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 752; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 760;

(ix) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 715; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 727; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 737; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 745; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 753; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 761;

(x) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 716; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 728; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 736; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 744; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 752; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 760;

(xi) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 717; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 729; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 737; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 745; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 753; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 761;

(xii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 718; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 730; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 738; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 746; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 754; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 762;

(xiii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 719; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 731; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 739; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 747; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 755; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 763;

(xiv) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 720; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 732; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 740; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 748; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 756; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 760;

(xv) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 721; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 733; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 741; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 749; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 757; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 761;

(xvi) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 722; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 734; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 742; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 750; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 758; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 764; or

(xvii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 723; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 735; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 743; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 751; (e) a CDR-L2 comprising the amino

acid sequence set forth SEQ ID NO: 759; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 765.

34. — The antibody or antigen binding fragment thereof of any one of claims 1 to 4 and 33, wherein the antibody or antigen binding fragment thereof comprises:

(i) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 635; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 649; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 663; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 677; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 691; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 705;

(ii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 107; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 147; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 187; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 307; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 347; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 387;

(iii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 105; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 145; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 185; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 305; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 345; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 385;

(iv) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 106; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 146; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 186; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 306; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 346; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 386;

(v) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 108; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 148; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 188; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 308; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 348; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 388;

(vi) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 109; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 149; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 189; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 309; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 349; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 389; or

(vii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 628; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 642; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 656; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 670; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 684; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 698.

35. — The antibody or antigen binding fragment thereof of any one of claims 1, 6 to 16, and 33, wherein the antibody or antigen binding fragment thereof comprises:

(i) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 636; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 650; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 664; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 678; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 692; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 706;

(ii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 117; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 157; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 197; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 317; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 357; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 397;

(iii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 115; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 155; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 195; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 315; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 355; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 395;

(iv) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 116; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 156; (c) a CDR-H3

comprising the amino acid sequence set forth in SEQ ID NO: 196; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 316; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 356; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 396;

(v) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 118; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 158; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 198; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 318; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 358; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 398;

(vi) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 119; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 159; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 199; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 319; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 359; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 399; or

(vii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 629; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 643; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 657; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 671; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 685; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 699.

36.—The antibody or antigen binding fragment thereof of claim 1 or 33, wherein the antibody or antigen binding fragment thereof comprises:

(i) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 637; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 651; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 665; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 679; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 693; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 707;

(ii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 482; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 520; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 545; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 570; (e) a CDR-L2 comprising the amino

acid sequence set forth SEQ ID NO: 595; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 620;

(iii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 480; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 518; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 543; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 568; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 593; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 618;

(iv) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 481; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 519; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 544; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 569; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 594; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 619;

(v) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 483; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 521; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 546; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 571; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 596; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 621;

(vi) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 484; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 522; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 547; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 572; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 597; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 622; or

(vii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 630; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 644; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 658; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 672; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 686; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 700.

37. —The antibody or antigen binding fragment thereof of claim 1 or 33, wherein the antibody or antigen binding fragment thereof comprises:

(i) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 638; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 652; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 666; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 680; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 694; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 708;

(ii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 467; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 492; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 530; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 555; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 580; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 605;

(iii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 465; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 490; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 528; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 553; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 578; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 603;

(iv) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 466; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 491; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 529; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 554; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 579; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 604;

(v) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 468; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 493; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 531; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 556; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 581; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 606;

(vi) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 469; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 494; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 532; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 557; (e) a CDR-L2 comprising the amino

acid sequence set forth SEQ ID NO: 582; and/or (f) a CDR L3 comprising the amino acid sequence set forth SEQ ID NO: 607; or

(vii) (a) a CDR H1 comprising the amino acid sequence set forth in SEQ ID NO: 631; (b) a CDR H2 comprising the amino acid sequence set forth in SEQ ID NO: 645; (c) a CDR H3 comprising the amino acid sequence set forth in SEQ ID NO: 659; (d) a CDR L1 comprising the amino acid sequence set forth in SEQ ID NO: 673; (e) a CDR L2 comprising the amino acid sequence set forth SEQ ID NO: 687; and/or (f) a CDR L3 comprising the amino acid sequence set forth SEQ ID NO: 701.

38. — The antibody or antigen binding fragment thereof of claim 1 or 33, wherein the antibody or antigen binding fragment thereof comprises:

(i) (a) a CDR H1 comprising the amino acid sequence set forth in SEQ ID NO: 639; (b) a CDR H2 comprising the amino acid sequence set forth in SEQ ID NO: 653; (c) a CDR H3 comprising the amino acid sequence set forth in SEQ ID NO: 667; (d) a CDR L1 comprising the amino acid sequence set forth in SEQ ID NO: 681; (e) a CDR L2 comprising the amino acid sequence set forth SEQ ID NO: 695; and/or (f) a CDR L3 comprising the amino acid sequence set forth SEQ ID NO: 709;

(ii) (a) a CDR H1 comprising the amino acid sequence set forth in SEQ ID NO: 472; (b) a CDR H2 comprising the amino acid sequence set forth in SEQ ID NO: 497; (c) a CDR H3 comprising the amino acid sequence set forth in SEQ ID NO: 535; (d) a CDR L1 comprising the amino acid sequence set forth in SEQ ID NO: 560; (e) a CDR L2 comprising the amino acid sequence set forth SEQ ID NO: 585; and/or (f) a CDR L3 comprising the amino acid sequence set forth SEQ ID NO: 610;

(iii) (a) a CDR H1 comprising the amino acid sequence set forth in SEQ ID NO: 470; (b) a CDR H2 comprising the amino acid sequence set forth in SEQ ID NO: 495; (c) a CDR H3 comprising the amino acid sequence set forth in SEQ ID NO: 533; (d) a CDR L1 comprising the amino acid sequence set forth in SEQ ID NO: 558; (e) a CDR L2 comprising the amino acid sequence set forth SEQ ID NO: 583; and/or (f) a CDR L3 comprising the amino acid sequence set forth SEQ ID NO: 608;

(iv) (a) a CDR H1 comprising the amino acid sequence set forth in SEQ ID NO: 471; (b) a CDR H2 comprising the amino acid sequence set forth in SEQ ID NO: 496; (c) a CDR H3 comprising the amino acid sequence set forth in SEQ ID NO: 534; (d) a CDR L1 comprising the amino acid sequence set forth in SEQ ID NO: 559; (e) a CDR L2 comprising the amino acid sequence set forth SEQ ID NO: 584; and/or (f) a CDR L3 comprising the amino acid sequence set forth SEQ ID NO: 609;

(v) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 473; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 498; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 536; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 561; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 586; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 611;

(vi) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 474; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 499; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 537; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 562; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 587; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 612; or

(vii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 632; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 646; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 660; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 674; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 688; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 702.

39. —The antibody or antigen binding fragment thereof of claim 1 or 33, wherein the antibody or antigen binding fragment thereof comprises:

(i) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 640; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 654; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 668; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 682; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 696; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 710;

(ii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 477; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 515; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 540; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 565; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 590; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 615;

(iii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 475; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 513; (c) a CDR-H3

comprising the amino acid sequence set forth in SEQ ID NO: 538; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 563; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 588; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 613;

(iv) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 476; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 514; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 539; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 564; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 589; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 614;

(v) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 478; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 516; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 541; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 566; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 591; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 616;

(vi) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 479; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 517; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 542; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 567; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 592; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 617; or

(vii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 633; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 647; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 661; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 675; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 689; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 703.

40.—The antibody or antigen binding fragment thereof of claim 1 or 33, wherein the antibody or antigen binding fragment thereof comprises:

(i) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 641; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 655; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 669; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 683; (e) a CDR-L2 comprising the amino

acid sequence set forth SEQ ID NO: 697; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 711;

(ii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 487; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 525; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 550; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 575; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 600; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 625;

(iii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 485; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 523; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 548; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 573; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 598; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 623;

(iv) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 486; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 524; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 549; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 574; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 599; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 624;

(v) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 488; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 526; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 551; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 576; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 601; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 626;

(vi) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 489; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 527; (c) a CDR-H3 comprising the amino acid sequence set forth in SEQ ID NO: 552; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 577; (e) a CDR-L2 comprising the amino acid sequence set forth SEQ ID NO: 602; and/or (f) a CDR-L3 comprising the amino acid sequence set forth SEQ ID NO: 627; or

(vii) (a) a CDR-H1 comprising the amino acid sequence set forth in SEQ ID NO: 634; (b) a CDR-H2 comprising the amino acid sequence set forth in SEQ ID NO: 648; (c) a CDR-H3

comprising the amino acid sequence set forth in SEQ ID NO: 662; (d) a CDR-L1 comprising the amino acid sequence set forth in SEQ ID NO: 676; (e) a CDR-L2 comprising the amino acid sequence set forth in SEQ ID NO: 690; and/or (f) a CDR-L3 comprising the amino acid sequence set forth in SEQ ID NO: 704.

41. The antibody or antigen binding fragment thereof of any one of claims 1 to 40,

wherein the antibody or antigen binding fragment thereof comprises:

(i) (a) an immunoglobulin variable region heavy chain (VH) comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to any one of SEQ ID NOs: 1, 2, 5, 6, 9, 10, 13, 14, 17, 19, 21, 23, 25, 27, 29, and 31;

and/or (b) an immunoglobulin variable region light chain (VL) comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to any one of SEQ ID NOs: 3, 4, 7, 8, 11, 12, 15, 16, 18, 20, 22, 24, 26, 28, and 30;

(ii) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 1; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 3;

(iii) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 2; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 4;

(iv) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 5; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 7;

(v) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 6; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 8;

(vi) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 9; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 11;

(vii) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 10; and/or (b) a VL comprising an

~~amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 12;~~

~~(viii) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 13; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 15;~~

~~(ix) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 14; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 16;~~

~~(x) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 23; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 24;~~

~~(xi) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 25; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 26;~~

~~(xii) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 27; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 28;~~

~~(xiii) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 29; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 30; or~~

~~(xiv) (a) a VH comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 31; and/or (b) a VL comprising an amino acid sequence having at least about 90, 95, 97, 98, 99, or 100 % sequence identity to SEQ ID NO: 32.~~

42.12. The antibody or antigen binding fragment thereof of any one of claims 1, ~~33,~~ ~~and 41 to 2~~, wherein the antibody or antigen binding fragment thereof comprises:

(i) (a) a VH comprising an amino acid sequence set forth in any one of SEQ ID NOs: 1, 2, 5, 6, 9, 10, 13, 14, 17, 19, 21, 23, 25, 27, 29, and 31; and/or (b) a VL comprising an amino acid

sequence set forth in any one of SEQ ID NOs: 3, 4, 7, 8, 11, 12, 15, 16, 18, 20, 22, 24, 26, 28, and 30;

(ii) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 1; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 3;

(iii) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 2; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 4;

(iv) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 5; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 7;

(v) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 6; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 8;

(vi) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 9; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 11;

(vii) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 10; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 12;

(viii) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 13; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 15;

(ix) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 14; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 16;

(x) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 23; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 24;

(xi) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 25; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 26;

(xii) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 27; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 28;

(xiii) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 29; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 30; or

(xiv) (a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 31; and/or (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 32.

13. The antibody or antigen binding fragment thereof of any one of claims 1 to 2, comprising a VH and a VL, wherein:

(a) the VH comprises an amino acid sequence having at least about 90% sequence identity to SEQ ID NO: 6; and

(b) the VL comprises an amino acid sequence having at least about 90% sequence identity to SEQ ID NO: 8.

14. The antibody or antigen binding fragment thereof of any one of claims 1 to 2, wherein the antibody or antigen binding fragment thereof comprises:

(a) a VH comprising an amino acid sequence set forth in SEQ ID NO: 6; and (b) a VL comprising an amino acid sequence set forth in SEQ ID NO: 8.

~~43.15.~~ The antibody or antigen binding fragment thereof of any one of claims 1 to 1442, further comprising an IgG constant region, wherein optionally -

~~44. The antibody or antigen binding fragment thereof of any one of claims 1 to 43, further comprising an the~~ IgG constant region having reduced antibody-dependent cell-mediated cytotoxicity (ADCC) function as compared to human IgG and/or reduced complement-dependent cytotoxicity (CDC) as compared to human IgG.

~~45.16.~~ The antibody or antigen binding fragment thereof of claim 1543 or 44, wherein:

(i) the constant region comprises an amino acid sequence having 80, 85, 90, 95, 97, 98, 99, or 100 % sequence identity to the amino acid sequence set forth by any one of SEQ ID NOs: 500-512; or:

~~46. The antibody or antigen binding fragment thereof of any one of claims 43 to 45, wherein (ii) the constant region comprises the amino acid sequence set forth by any one of SEQ ID NOs: 500-512.~~

~~47. The antibody or antigen binding fragment thereof of any one of claims 1 to 46, comprising a constant region having an amino acid sequence variant corresponding to (a) 297A, 297Q, 297G, or 297D, (b) 279F, 279K, or 279L, (c) 228P, (d) 235A, 235E, 235G, 235Q, 235R, or 235S, (e) 237A, 237E, 237K, 237N, or 237R, (f) 234A, 234V, or 234F, (g) 233P, (h) 328A, (i) 327Q or 327T, (j) 329A, 329G, 329Y, or 329R (k) 331S, (l) 236F or 236R, (m) 238A, 238E, 238G, 238H, 238I, 238V, 238W, or 238Y, (n) 248A, (o) 254D, 254E, 254G, 254H, 254I, 254N, 254P, 254Q, 254T, or 254V, (p) 255N, (q) 256H, 256K, 256R, or 256V, (r) 264S, (s) 265H, 265K, 265S, 265Y, or 265A, (t) 267G, 267H, 267I, or 267K, (u) 268K, (v) 269N or 269Q, (w) 270A, 270G, 270M, or 270N, (x) 271T, (y) 272N, (z) 292E, 292F, 292G, or 292I, (aa) 293S, (bb) 301W, (cc) 304E, (dd) 311E, 311G, or 311S, (ee) 316F, (ff) 328V, (gg) 330R, (hh) 339E or 339L, (ii) 343I or 343V, (jj) 373A, 373G, or 373S, (kk) 376E, 376W, or 376Y, (ll) 380D, (mm) 382D or 382P, (nn) 385P, (oo) 424H, 424M, or 424V, (pp) 434I, (qq) 438G, (rr) 439E, 439H, or 439Q, (ss) 440A, 440D, 440E, 440F, 440M, 440T, or 440V, (tt) E233P, (uu) L235E, (vv) L234A and L235A, (ww) L234A, L235A, and G237A, (xx) L234A, L235A, and P329G, (yy) L234F, L235E, and P331S, (zz) L234A,~~

~~L235E, and G237A, (aaa), L234A, L235E, G237A, and P331S (bbb) L234A, L235A, G237A, P238S, H268A, A330S, and P331S, (ccc) L234A, L235A, and P329A, (ddd) G236R and L328R, (eee) G237A, (fff) F241A, (ggg) V264A, (hhh) D265A, (iii) D265A and N297A, (jjj) D265A and N297G, (kkk) D270A, (lll) A330L, (mmm) P331A or P331S, or (nnn) any combination of (a) —(mmm), per EU numbering.~~

~~48.17.~~ The antibody or antigen binding fragment thereof of any one of claims 1 to ~~1647~~, wherein:

~~(i)~~ the antibody or antigen binding fragment thereof is an IgG antibody, ~~—~~

~~49.~~ The antibody or antigen binding fragment thereof of claim ~~48~~, wherein optionally the IgG antibody is IgG1, IgG2, IgG3, or IgG4; ~~—~~

~~50.~~ The antibody or antigen binding fragment thereof of any one of claims 1 to ~~49~~, ~~wherein (ii)~~ the antibody or antigen binding fragment thereof is human, chimeric, or humanized; ~~or —~~

~~51.~~ The antibody or antigen binding fragment thereof of any one of claims 1 to ~~50~~, ~~(iii)~~ wherein the antibody or antigen binding fragment thereof is a Fab, F(ab')₂, a single-domain antibody, or a single chain variable fragment (scFv).

~~52.—~~The antibody or antigen binding fragment thereof of any one of claims 1 to ~~51~~, wherein the antibody or antigen binding fragment thereof is a bispecific or multispecific antibody.

~~53.—~~The antibody or antigen binding fragment thereof of any one of claims 1 to ~~52~~, wherein the antibody or antigen binding fragment thereof binds one or more amino acids residues of CD30L that interact with CD30.

~~54.—~~The antibody or antigen binding fragment thereof of any one of claims 1 to ~~53~~, wherein the antibody or antigen binding fragment thereof inhibits a binding interaction between CD30L and CD30.

~~55.—~~The antibody or antigen binding fragment thereof of any one of claims 1 to ~~53~~, wherein the antibody or antigen binding fragment thereof blocks a binding interaction between CD30L and CD30.

~~56.—~~The antibody or antigen binding fragment thereof of claim ~~54~~ or ~~55~~, wherein the inhibition or blocking is determined in an ELISA assay, a cell binding assay with CD30L expressing cells, or a surface plasmon resonance (SPR) assay.

~~57.—~~The antibody or antigen binding fragment thereof of any one of claims 1 to ~~56~~, wherein the antibody or antigen binding fragment thereof specifically binds to CD30L.

~~58.—The antibody or antigen binding fragment thereof of any one of claims 1 to 57, wherein the antibody or antigen binding fragment thereof (i) inhibits interleukin-8 secretion in a cell-based assay, (ii) inhibits interleukin-6 secretion in a cell-based assay, or (iii) both (i) and (ii).~~

~~59.—The antibody or antigen binding fragment thereof of any one of claims 1 to 57, wherein the antibody or antigen binding fragment thereof (i) blocks interleukin-8 secretion in a cell-based assay, (ii) blocks interleukin-6 secretion in a cell-based assay, or (iii) both (i) and (ii).~~

~~60.—The antibody or antigen binding fragment thereof of claim 58 or 59, wherein the cell-based assay is a dual-cell assay with a cell expressing CD30 and a cell expressing CD30L.~~

~~61.—The antibody or antigen binding fragment thereof of any one of claims 1 to 60, wherein the antibody or antigen binding fragment thereof binds to (i) human CD30L, (ii) cynomolgus CD30L, or (iii) both human CD30L and cynomolgus CD30L.~~

~~62.—The antibody or antigen binding fragment thereof of any one of claims 1 to 61, wherein the antibody or antigen binding fragment thereof binds to CD30L with a dissociation equilibrium constant (K_D) of no more than 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, or 1000 pM.~~

~~63.—The antibody or antigen binding fragment thereof of any one of claims 1 to 62, wherein the antibody or antigen binding fragment thereof binds to CD30L with an association rate constant (k_{on}) of at least 0.1×10^6 , 0.2×10^6 , 0.3×10^6 , 0.4×10^6 , 0.5×10^6 , 0.6×10^6 , 0.7×10^6 , 0.8×10^6 , 0.9×10^6 , 1.0×10^6 , 1.1×10^6 , 1.2×10^6 , 1.3×10^6 , 1.4×10^6 , 1.5×10^6 , or $1.55 \times 10^6 \text{ M}^{-1} \text{ S}^{-1}$.~~

~~64.—The antibody or antigen binding fragment thereof of any one of claims 1 to 63, wherein the antibody or antigen binding fragment thereof binds to CD30L with a dissociation rate constant (k_{off}) of no more than 1.4×10^{-4} , 1.41×10^{-4} , 1.5×10^{-4} , 1.6×10^{-4} , 1.7×10^{-4} , 1.8×10^{-4} , 1.9×10^{-4} , 2.0×10^{-4} , 2.1×10^{-4} , 2.2×10^{-4} , 2.3×10^{-4} , 2.4×10^{-4} , 2.5×10^{-4} , 2.6×10^{-4} , 2.7×10^{-4} , 2.8×10^{-4} , 2.9×10^{-4} , 3.0×10^{-4} , 3.1×10^{-4} , 3.2×10^{-4} , 3.3×10^{-4} , 3.4×10^{-4} , or $3.5 \times 10^{-4} \text{ S}^{-1}$.~~

~~65.—The antibody or antigen binding fragment thereof of any one of claims 1 to 64, wherein the antibody or antigen binding fragment thereof is recombinant antibody or antigen binding fragment thereof.~~

~~66.—The antibody or antigen binding fragment thereof of any one of claims 1 to 65, wherein the antibody or antigen binding fragment thereof is isolated antibody or antigen binding fragment thereof.~~

~~67.18.~~ A nucleic acid encoding the antibody or antigen binding fragment thereof of any one of claims 1 to ~~1766~~.

~~68.19.~~ A cell comprising the antibody or antigen binding fragment thereof of any one of claims 1 to ~~1766~~ or the nucleic acid of claim ~~1867~~.

~~69.20.~~ The cell of claim ~~1968~~, wherein the cell is a eukaryotic cell ~~or~~:-

~~70.~~ The cell of claim ~~68~~, wherein the cell is a prokaryotic cell.

~~71.—~~The antibody or antigen binding fragment thereof of any one of claims 1 to ~~66~~ for use in a method of inhibiting binding of CD30L to CD30.

~~72.—~~The antibody or antigen binding fragment thereof of any one of claims 1 to ~~66~~ for use in a method of inhibiting activation of CD30 signaling in a cell.

~~73.—~~The antibody or antigen binding fragment thereof of any one of claims 1 to ~~66~~ for use in a method of inhibiting activation, expression, and/or secretion of a pro-inflammatory cytokine protein.

~~74.—~~The method of claim ~~73~~, wherein the pro-inflammatory cytokine protein is interleukin-8 and/or interleukin-6.

~~75.—~~The method of claim ~~74~~, wherein the interleukin-8 is expressed or released by a T-lymphocyte.

~~76.21.~~ Use of ~~T~~the antibody or antigen binding fragment thereof of any one of claims 1 to ~~1766~~ for use in the manufacture of a medicament for treating an autoimmune disease in an individual in need thereof.

~~77.22.~~ The ~~antibody or antigen binding fragment thereof for the~~ use of claim ~~2176~~, wherein the autoimmune disease is irritable bowel disease~~,-~~

~~78.~~ The antibody or antigen binding fragment thereof for the use of claim ~~77~~, wherein optionally the irritable bowel disease ~~iscomprises~~ ulcerative colitis (UC) or Crohn's Disease (CD).

~~79.—~~A method of treating or ameliorating an autoimmune disease in an individual in need thereof, the method comprising administering to the individual the antibody or antigen binding fragment thereof of any one of claims 1 to ~~66~~, thereby treating or ameliorating the autoimmune disease.

~~80.—~~The method of claim ~~79~~, wherein the autoimmune disease is irritable bowel disease.

~~81.—~~The method of claim ~~80~~, wherein the irritable bowel disease comprises ulcerative colitis (UC) or Crohn's Disease (CD).

~~82. — A method for inhibiting and/or reducing binding of CD30L to CD30 in an individual afflicted with an inflammatory or autoimmune disorder, the method comprising administering to the individual afflicted with the inflammatory or autoimmune disorder the antibody or antigen binding fragment thereof of any one of claims 1 to 66, thereby inhibiting and/or reducing the binding of CD30L to CD30.~~

~~83. — The method of claim 82, wherein the individual is afflicted with an autoimmune disease.~~

~~84. — The method of claim 83, wherein the autoimmune disease is irritable bowel disease.~~

~~85. — The method of claim 84, wherein the irritable bowel disease comprises ulcerative colitis (UC) or Crohn's Disease (CD).~~

~~86. — A method of reducing and/or inhibiting inflammation in an individual, the method comprising administering to the individual the antibody or antigen binding fragment thereof of any one of claims 1 to 66, thereby reducing and/or inhibiting inflammation.~~

~~87. — The method of claim 86, wherein reducing and/or inhibiting inflammation comprises reducing an amount of pro-inflammatory cytokine expression or secretion in 86the individual or a tissue of the individual.~~

~~88. — The method of claim 86 or 87, wherein reducing and/or inhibiting inflammation comprises reducing an amount of pro-inflammatory cytokine expression or secretion by a T lymphocyte of the individual.~~

~~89. — The method of claim 87 or 88, wherein the pro-inflammatory cytokine comprises interleukin-8.~~

~~90. — The method of any one of claims 86 to 89, wherein the individual has an autoimmune disease.~~

~~91. — The method of claim 90, wherein the autoimmune disease is irritable bowel disease.~~

~~92. — The method of claim 91, wherein the irritable bowel disease comprises ulcerative colitis (UC) or Crohn's Disease (CD).~~

23. The antibody or antigen binding fragment thereof of any one of claims 1 to 17 for use in therapy.