CLAIMS

1. The isolated antibody or antigen-binding fragment thereof, that specifically binds to CD40L comprising:

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 10, 11, 12, 13, or 14;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15; and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16 or 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18 or 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20.

2. The isolated antibody or antigen-binding fragment thereof of claim 1, comprising:

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 10;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15; and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20; or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 10;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15; and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 10;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 10;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 11;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 11;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20; or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 11;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 11;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 12;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 12;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 12;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 12;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 13;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 13;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 13;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 13;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 13;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 14;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 14;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 18;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 14;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 16;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20;

or

(a) a heavy chain variable region (V_H) comprising;

i) a CDRH1 domain comprising the sequence set forth in SEQ ID NO: 9;

ii) a CDRH2 domain comprising the sequence set forth in SEQ ID NO: 14;

iii) a CDRH3 domain comprising the sequence set forth in SEQ ID NO: 15;

and

(b) a light chain variable region (V_L) comprising:

i) a CDRL1 domain comprising the sequence set forth in SEQ ID NO: 17;

ii) a CDRL2 domain comprising the sequence set forth in SEQ ID NO: 19;

iii) a CDRL3 domain comprising the sequence set forth in SEQ ID NO: 20.

3. An isolated antibody or antigen-binding fragment thereof that specifically binds to CD40L comprising:

(a) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NOs: 1, 2, 3, or 4: and

(b) a light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NOs: 5, 6, 7, or 8.

4. The isolated antibody or antigen-binding fragment thereof of claim 3, comprising

(a) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 1 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 5; or

(b) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 1 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 6: or

(c) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 1 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 7: or

(d) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 1 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 8; or

(e) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 1 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 5; or

(f) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 1 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 6; or

(g) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 1 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 7; or

(h) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 1 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 8; or

(i) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 3 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 5; or

(j) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 3 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 6; or

(k) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 3 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 7; or

(l) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 3 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 8; or

(m) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 4 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 5; or

(n) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 4 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 6; or

(o) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 4 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 7; or

(p) a heavy chain variable region (V_H) having the amino acid sequence as set forth in SEQ ID NO: 4 and the light chain variable region (V_L) having the amino acid sequence as set forth in SEQ ID NO: 8.

5. The isolated antibody according to any one of claims 1-4, wherein the antibody or antigen binding fragment comprises an Fc region and the Fc region has been engineered to reduce or eliminate one or more Fc effector function.

6. The isolated antibody of claim 5, wherein the one or more Fc effector function is FcR binding or complement binding.

7. The isolated antibody according to any one of claims 1-6, wherein the antibody is of the IgG1 isotype, and wherein the heavy chain constant region comprises the amino acid sequence as set forth in SEQ ID NO: 21.

8. The isolated antibody according to any one of claims 1-6, further comprising a heavy chain constant region wherein the heavy chain constant region comprises the amino acid sequence as set forth in SEQ ID NO: 22.

9. The isolated antibody according to any one of claims 1-6, chain constant region comprises the amino acid sequence as set forth in SEQ ID NO: 23.

10. The isolated antibody according to any one of claims 1-6, further comprising a heavy chain constant region wherein the heavy chain constant region comprises the amino acid sequence as set forth in SEQ ID NO: 24.

11. The isolated antibody according to any one of claims 1-10, wherein the antibody further comprises a light chain constant region wherein the light chain constant region comprises the amino acid sequence set forth in SEQ ID NO: 25.

12. The isolated antibody, wherein the antibody comprises

(a) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 42 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(b) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 42 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(c) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 42 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(d) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 42 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(e) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 43 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(f) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 43 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(g) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 43 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(h) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 43 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(i) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 44 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(j) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 44 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(k) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 44 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(l) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 44 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(m) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 45 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(n) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 45 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(o) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 45 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(p) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 45 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41.

13. The isolated antibody, wherein the antibody comprises

(a) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 46 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(b) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 46 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(c) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 46 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(d) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 46 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(e) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 47 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(f) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 47 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(g) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 47 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(h) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 47 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(i) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 48 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(j) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 48 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(k) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 48 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(l) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 48 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(m) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 49 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(n) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 49 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(o) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 49 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(p) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 49 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41.

14. The isolated antibody, wherein the antibody comprises

(a) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 50 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(b) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 50 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(c) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 50 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(d) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 50 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(e) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 51 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(f) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 51 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(g) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 51 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(h) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 51 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(i) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 52 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(j) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 52 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(k) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 52 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(l) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 52 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(m) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 53 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(n) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 53 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(o) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 53 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(p) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 53 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41.

15. The isolated antibody, wherein the antibody comprises

(a) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 54 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(b) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 54 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(c) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 54 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(d) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 54 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(e) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 55 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(f) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 55 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(g) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 55 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(h) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 55 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(i) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 56 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(j) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 56 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(k) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 56 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(l) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 56 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41; or

(m) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 57 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 38; or

(n) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 57 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 39: or

(o) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 57 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 40: or

(p) a heavy chain having the amino acid sequence as set forth in SEQ ID NO: 57 and the light chain having the amino acid sequence as set forth in SEQ ID NO: 41.

16. An antibody or antibody fragment according to any one of claims 1-15 for use in treating a subject with a CD40L-associated disease or disorder comprising administering to the subject a therapeutically effective amount of.

17. Use of an antibody or antibody fragment according to any one of claims 1-15 in the preparation of a medicament for treating a subject with a neurodegenerative or a neuromuscular disease or disorder; an inflammatory or immune disease or disorder; or an autoimmune disease.

18. The use according to claim 17, wherein the disease or disorder is an autoimmune disease, selected from the group consisting of systemic lupus erythematous, type-1 diabetes, Myasthenia gravis, psoriasis, Addison's disease, Crohn's disease, uveitis, multiple sclerosis, hemolytic anemia, inflammatory bowel disease, immune thrombocytopenic purpura, Graves' disease, and rheumatoid arthritis.

19. The use according to claim 17, wherein the disease or disorder is a neurodegenerative disorder or a neuromuscular disorder selected from the group consisting of Alzheimer's Disease, Parkinson's Disease, Amyotrophic Lateral Sclerosis, Multifocal Motor Neuropathy, Primary Lateral Sclerosis, Spinal Muscular Atrophy, Kennedy's Disease, or Spinocerebellar Ataxia.

20. The use according to claim 17, wherein the disease or disorder is Amyotrophic Lateral Sclerosis.

21. An antibody or an antibody or antibody fragment according to any one of claims 1-15 for use in or use of an antibody or antibody fragment according to any one of claims 1-15 in the preparation of a medicamentfor inhibiting an immune response in a subject comprising administering to the subject a therapeutically effective amount of.

22. The use of claim 17, wherein the immune response is graft vs. host disease, or organ transplant rejection.

23. The antibody or antibody fragment for use according to or the use according to any one of claim 16-22, wherein the antibody or antibody fragment is to be administered in combination with another therapeutic agent.

24. The use according to claim 23, wherein the antibody is to be administered in combination with a compound that blocks the interaction between CD28 and CD86 or between CD28 and CD80.

25. The use according to claim 24, wherein the compound that blocks the interaction between CD28 and CD86 or between CD28 and CD80 is a CTLA4-Ig fusion protein, or the compound that blocks the interaction between CD28 and CD86 or between CD28 and CD80 is abatacept or belatacept or galiximab.