CLAIMS

1. A CD27L antigen binding protein comprising a light chain variable domain and a heavy chain variable domain, wherein:

a) the light chain variable domain comprises an LCDR1 sequence as set forth in SEQ ID NO: 74; an LCDR2 sequence as set forth in SEQ ID NO: 82; and an LCDR3 sequence as set forth in SEQ ID NO: 90; and the heavy chain variable domain comprises an HCDR1 sequence as set forth in SEQ ID NO: 28; an HCDR2 sequence as set forth in SEQ ID NO: 36; and an HCDR3 sequence as set forth in SEQ ID NO: 44;

b) the light chain variable domain is defined as in a) but has an R24K-S26G mutation, and the heavy chain variable domain is defined as in a) but has an N31S-I34M mutation;

c) the light chain variable domain is defined as in a) but has an R24K-S26G mutation, and the heavy chain variable domain is defined as in a);

d) the light chain variable domain is defined as in a) but has an L55I-Y58F mutation, and the heavy chain variable domain is defined as in a);

e) the light chain variable domain is defined as in a) but has a Q95N-T96S mutation, and the heavy chain variable domain is defined as in a) but has an N31S-I34M mutation; or

f) the light chain variable domain is defined as in a) but has a Q95N-T96S mutation, and the heavy chain variable domain is defined as in a).

2. The CD27L antigen binding protein of claim 1, wherein the light chain variable domain has at least 90% identity to the amino acid sequence set forth in SEQ ID NO: 66.

3. The CD27L antigen binding protein of claim 1 or 2, wherein the heavy chain variable domain has at least 90% identity to the amino acid sequence set forth in SEQ ID NO: 20

4. The CD27L antigen binding protein of any one of the preceding claims, wherein the light chain variable domain has at least 95% identity to the amino acid sequence set forth in SEQ ID NO: 66.

5. The CD27L antigen binding protein of any one of the preceding claims, wherein the heavy chain variable domain has at least 95% identity to the amino acid sequence set forth in SEQ ID NO: 20.

6. The CD27L antigen binding protein of claim 1, wherein the light chain variable domain has no more than ten amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO: 66; and the heavy chain variable domain has no more than ten amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO: 20.

7. The CD27L antigen binding protein of claim 6, wherein the light chain variable domain has no more than five amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO: 66.

8. The CD27L antigen binding protein of claim 6 or 7, wherein the heavy chain variable domain has no more than five amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO: 20.

9. The CD27L antigen binding protein of any one of the preceding claims, wherein the light chain variable domain comprises the amino acid sequence set forth in SEQ ID NO: 66.

10. The CD27L antigen binding protein of any one of the preceding claims, wherein the heavy chain variable domain comprises the amino acid sequence set forth in SEQ ID NO: 20.

11. The CD27L antigen binding protein of any of claims 1-10, wherein the antigen binding protein specifically binds human CD27L with an affinity of less than or equal to 2 x 10^{-11} M.

12. The CD27L antigen binding protein of any of claims 1-11, wherein the antigen binding protein inhibits binding of CD27L to CD27.

13. The CD27L antigen binding protein of any of claims 1-12, wherein the antigen binding protein is an antibody.

14. The CD27L antigen binding protein of claim 13, wherein the antibody is a human antibody.

15. The CD27L antigen binding protein of claim 14 comprising a light chain and a heavy chain, wherein the light chain comprises the amino acid sequence set forth in SEQ ID NO: 58 and the heavy chain comprises the amino acid sequence set forth in SEQ ID NO: 12.

16. The CD27L antigen binding protein of any of claims 1-15, wherein the CD27L antigen binding protein is a bispecific antibody.

17. The CD27L antigen binding protein of claim 16, wherein the bispecific antibody binds CD27L and a human effector cell antigen which is CD3.

18. The CD27L antigen binding protein of any one of claims 1-17, wherein the CD27L antigen binding protein is an antibody fragment.

19. The CD27L antigen binding protein of claim 18, wherein the antibody fragment is selected from the group consisting of F(ab), Fab fragments consisting of VL, VH, CL and CH1 domains, F(ab'), F(ab')2, Fd fragments consisting of the VH and CH1 domains, Fv, Fv fragments consisting of the VL and VH domains of a single antibody, dAb fragments, single chain Fv molecules (scFv), bispecific single chain Fv dimers, diabodies and triabodies.

20. The CD27L antigen binding protein of any of claims 1-19, wherein the CD27L antigen binding protein is conjugated to a chemotherapeutic agent.

21. The CD27L antigen binding protein of claim 20, wherein a linker conjugates the chemotherapeutic agent to the CD27L antigen binding protein.

22. The CD27L antigen binding protein of claim 21, wherein the linker is a non-cleavable linker.

23. The CD27L antigen binding protein of claim 22, wherein the linker comprises MCC.

24. The CD27L antigen binding protein of any of claims 20-23, wherein the chemotherapeutic agent is conjugated to one or more lysines contained within a polypeptide of the CD27L antigen binding protein.

25. The CD27L antigen binding protein of any of claims 20-24, wherein the chemotherapeutic agent is DM1.

26. A composition of CD27L antigen binding proteins of claim 25, wherein the average number of DM1 molecules per CD27L antigen binding protein is between 1 and 10.

27. The composition of CD27L antigen binding proteins of claim 26, wherein the average number of DM1 molecules per CD27L antigen binding protein is between 3 and 7.

28. The composition of CD27L antigen binding proteins of claim 27, wherein the average number of DM1 molecules per CD27L antigen binding protein is between 4 and 6.

29. The composition of CD27L antigen binding proteins of claim 27, wherein the average number of DM1 molecules per CD27L antigen binding protein is about 4.0, about 4.1, about 4.2, about 4.3, about 4.4, about 4.5, about 4.6, about 4.7, about 4.8, about 4.9, about 5.0, about 5.1, about 5.2, about 5.3, about 5.4, about 5.5, about 5.6, about 5.7, about 5.8, about 5.9, or about 6.0.

30. The composition of CD27L antigen binding proteins of any of claims 26-29, wherein the composition is a pharmaceutical composition comprising a therapeutically effective amount of the CD27L antigen binding protein.

31. The composition of CD27L antigen binding proteins of claim 30, wherein the pharmaceutical composition is lyophilized.

32. An isolated nucleic acid encoding a polypeptide, said polypeptide comprising:

a) a light chain variable domain comprising an LCDR1 having the sequence set forth in SEQ ID NO: 74, an LCDR2 having the sequence set forth in SEQ ID NO: 82, and an LCDR3 having the sequence set forth in SEQ ID NO: 90;

b) a heavy chain variable domain comprising an HCDR1 having the sequence set forth in SEQ ID NO: 28, an HCDR2 having the sequence set forth in SEQ ID NO: 36, and an HCDR3 having the sequence set forth in SEQ ID NO: 44;

c) a light chain variable domain as defined in a) but having an R24K-S26G mutation, an L55I-Y58F mutation or a Q95N-T96S mutation; or

d) a heavy chain variable domain as defined in b) but having an N31S-I34M mutation.

33. The isolated nucleic acid according to claim 32, wherein said polypeptide comprises:

a) a light chain variable domain having at least 95% identity to the amino acid sequence set forth in SEQ ID NO:66;

b) a heavy chain variable domain having at least 95% identity to the amino acid sequence set forth in SEQ ID NO:20;

c) a light chain variable domain having no more than five amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO:66; or

d) a heavy chain variable domain having no more than five amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO:20;

34. The isolated nucleic acid of claim 32 or 33, wherein the polypeptide comprises an antibody light chain.

35. The isolated nucleic acid of claim 34, wherein the light chain is encoded by a nucleic acid comprising a nucleotide sequence at least 80% identical to the nucleotide sequence set forth in SEQ ID NO: 51.

36. The isolated nucleic acid of claim 35, wherein the light chain is encoded by a nucleic acid comprising a nucleotide sequence at least 90% identical to the nucleotide sequence set forth in SEQ ID NO: 51.

37. The isolated nucleic acid of claim 36, wherein the light chain is encoded by a nucleic acid comprising a nucleotide sequence at least 95% identical to the nucleotide sequence set forth in SEQ ID NO: 51.

38. The isolated nucleic acid of claim 37, wherein the light chain is encoded by a nucleic acid comprising a nucleotide sequence set forth in SEQ ID NO: 51.

39. The isolated nucleic acid of claim 32 or 33, wherein the polypeptide comprises an antibody heavy chain.

40. The isolated nucleic acid of claim 39, wherein the heavy chain is encoded by a nucleic acid comprising a nucleotide sequence at least 80% identical to the nucleotide sequence set forth in SEQ ID NO: 5.

41. The isolated nucleic acid of claim 40, wherein the heavy chain is encoded by a nucleic acid comprising a nucleotide sequence at least 90% identical to the nucleotide sequence set forth in SEQ ID NO: 5.

42. The isolated nucleic acid of claim 41, wherein the heavy chain is encoded by a nucleic acid comprising a nucleotide sequence at least 95% identical to the nucleotide sequence set forth in SEQ ID NO: 5.

43. The isolated nucleic acid of claim 42, wherein the heavy chain is encoded by a nucleic acid comprising a nucleotide sequence set forth in SEQ ID NO: 5.

44. An expression vector comprising the isolated nucleic acid of any of claims 32-43.

45. The expression vector of claim 44, wherein the isolated nucleic acid encodes an antibody light chain.

46. The expression vector of claim 44, wherein the isolated nucleic acid encodes an antibody heavy chain.

47. The expression vector of claim 45, further comprising an isolated nucleic acid encoding an antibody heavy chain.

48. A recombinant host cell comprising an isolated nucleic acid of any of claims 32-43 operably linked to a promoter.

49. A recombinant host cell comprising an expression vector of claim 45 or 46.

50. The recombinant host cell of claim 49, wherein the host cell comprises an expression vector of claim 44 and 45.

51. The recombinant host cell of claim 50, wherein the host cell secretes an antibody that binds CD27L.

52. The recombinant host cell of any of claims 48-51, wherein the cell is of mammalian origin.

53. The recombinant host cell of claim 52, wherein the cell is a Chinese hamster ovary (CHO) cell line.

54. A method of making a CD27L antibody drug conjugate, said method comprising the steps of:

a) providing a CD27L antigen binding protein of any one of claims 1-19;

b) conjugating the CD27L antigen binding protein to a linker; and

c) conjugating a drug to said linker.

55. A method of making a CD27L antibody drug conjugate, said method comprising the steps of:

a) providing a CD27L antigen binding protein of any one of claims 1-19; and

b) conjugating a linker covalently bound to a drug to said CD27L antigen binding protein.

56. The method of claim 54 or 55, wherein the CD27L antigen binding protein is an antibody.

57. The method of claim 56, wherein the antibody comprises a light chain variable domain amino acid sequence as set forth in SEQ ID NO:66 and a heavy chain variable domain amino acid sequence as set forth in SEQ ID NO:20.

58. The method of claim 57, wherein the antibody is Ab4.

59. The method of any one of claims 54-58, wherein the linker comprises MCC.

60. The method of any one of claims 54-59, wherein the drug comprises DM1.

61. Use of a CD27L antigen binding protein of any one of claims 1-19 in the manufacture of a medicament for treating cancer in a patient.

62. The use of claim 61, wherein the CD27L antigen binding protein is an antibody.

63. The use of claim 62, wherein the antibody comprises a light chain variable domain amino acid sequence as set forth in SEQ ID NO:66 and a heavy chain variable domain amino acid sequence as set forth in SEQ ID NO:20.

64. The use of claim 63, wherein the antibody is Ab4.

65. The use of any one of claims 62-64, wherein a pharmaceutical composition comprises the antibody.

66. The use of claim 65, wherein the antibody comprises enhanced effector function.

67. The use of claim 66, wherein the pharmaceutical composition comprises a population of antibody drug conjugates.

68. The use of claim 67, wherein the antibody drug conjugate comprises an MCC linker.

69. The use of claim 67 or 68, wherein the antibody drug conjugate comprises DM1.

70. The use of claim 69, wherein the average number of DM1 molecules per antibody is between 1 and 10.

71. The use of claim 70, wherein the average number of DM1 molecules per antibody is between 3 and 7.

72. The use of claim 71, wherein the average number of DM1 molecules per antibody is between 4 and 6.

73. The use of claim 72, wherein the average number of DM1 molecules per antibody is about 4.0, about 4.1, about 4.2, about 4.3, about 4.4, about 4.5, about 4.6, about 4.7, about

4.8, about 4.9, about 5.0, about 5.1, about 5.2, about 5.3, about 5.4, about 5.5, about 5.6, about 5.7, about 5.8, about 5.9, or about 6.0.

74. The use of any of claims 61-73, wherein a sample from the patient is tested for CD27L expression.

75. The use of claim 74, wherein the sample is tested for CD27L mRNA expression.

76. The use of claim 74, wherein the sample is tested for CD27L protein expression.

77. The use of any one of claims 74-76, wherein the sample is a blood sample.

78. The use of any one of claims 74-76, wherein the sample is a biopsy.

79. The use of any one of claims 61-78, wherein the cancer is renal cell carcinomas (RCC), clear cell RCC, head and neck cancer, glioblastoma, breast cancer, brain tumor, nasopharangeal carcinoma, non-Hodgkin's lymphoma (NHL), acute lymphocytic leukemia (ALL), chronic lymphocytic leukemia (CLL), Burkitt's lymphoma, anaplastic large-cell lymphomas (ALCL), multiple myeloma, cutaneous T-cell lymphomas, nodular small cleaved-cell lymphomas, lymphocytic lymphomas, peripheral T-cell lymphomas, Lennert's lymphomas, immunoblastic lymphoma, T-cell leukemia/lymphomas (ATLL), adult T-cell leukemia (T-ALL), entroblastic/centrocytic (cb/cc) follicular lymphoma cancer, diffuse large cell lymphoma of B lineage, angioimmunoblastic lymphadenopathy (AILD)-like T cell lymphoma, HIV associated body cavity based lymphoma, embryonal carcinoma, undifferentiated carcinoma of the rhino-pharynx, Castleman's disease, Kaposi's Sarcoma, multiple myeloma, Waldenstrom's macroglobulinemia or other B-cell lymphoma.

80. The use of claim 79, wherein the cancer is RCC.

81. The use of claim 79, wherein the cancer is NHL.

82. The use of claim 79, wherein the cancer is CLL.

83. Use of a CD27L antigen binding protein of any one of claims 1-19 in the manufacture of a medicament for treating an autoimmune or inflammatory disorder in a patient.

84. The use of claim 83, wherein the CD27L antigen binding protein is an antibody.

85. The use of claim 84, wherein the antibody comprises a light chain variable domain amino acid sequence as set forth in SEQ ID NO:66 and a heavy chain variable domain amino acid sequence as set forth in SEQ ID NO:20.

86. The use of claim 85, wherein the antibody is Ab4.

87. The use of claim 83, wherein the antigen binding protein inhibits binding of CD27 to CD27L.

88. The use of any one of claims 83-87, wherein the autoimmune or inflammatory disorder is systemic lupus erythematosus (SLE), insulin dependent diabetes mellitus (IDDM), inflammatory bowel disease (IBD), multiple sclerosis (MS), psoriasis, autoimmune thyroiditis, rheumatoid arthritis (RA), or glomerulonephritis.

89. The use of any of claims 83-87, wherein the treatment inhibits or prevents transplant rejection in the patient.

90. The use of any of claims 83-87, wherein the treatment inhibits or prevents graft versus host disease (GVHD).

CLAIMS

1. A CD27L antigen binding protein comprising a light chain variable domain having at least 90% identity to the amino acid sequence set forth in SEQ ID NO: 66 and a heavy chain variable domain having at least 90% identity to the amino acid sequence set forth in SEQ ID NO: 20.

2. The CD27L antigen binding protein of claim 1, wherein the light chain variable domain has at least 95% identity to the amino acid sequence set forth in SEQ ID NO: 66.

3. The CD27L antigen binding protein of claim 1 or 2, wherein the heavy chain variable domain has at least 95% identity to the amino acid sequence set forth in SEQ ID NO: 20.

4. A CD27L antigen binding protein, comprising a light chain variable domain having no more than ten amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO: 66 and a heavy chain variable domain having no more than ten amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO: 20.

5. The CD27L antigen binding protein of claim 4, wherein the light chain variable domain has no more than five amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO: 66.

6. The CD27L antigen binding protein of claim 4 or 5, wherein the heavy chain variable domain has no more than five amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO: 20.

7. The CD27L antigen binding protein of claim 1-6, wherein the light chain variable domain comprises the amino acid sequence set forth in SEQ ID NO: 66.

8. The CD27L antigen binding protein of claim 1-7, wherein the heavy chain variable domain comprises the amino acid sequence set forth in SEQ ID NO: 20.

9. A CD27L antigen binding protein having a light chain variable domain comprising

an LCDR1 having no more than three amino acid additions, deletions, or substitutions from the LCDR1 sequence set forth in SEQ ID NO: 74; an LCDR2 having no more than three amino acid additions, deletions, or substitutions from the LCDR2 sequence set forth in SEQ ID NO: 82; and an LCDR3 having no more than three amino acid additions, deletions, or substitutions from the LCDR3 sequence set forth in SEQ ID NO: 90;

and

a heavy chain variable domain comprising

an HCDR1 having no more than three amino acid additions, deletions, or substitutions from the HCDR1 sequence set forth in SEQ ID NO: 28; an HCDR2 having no more than three amino acid additions, deletions, or substitutions from the HCDR2 sequence set forth in SEQ ID NO: 36; and an HCDR3 having no more than three amino acid additions, deletions, or substitutions from the HCDR3 sequence set forth in SEQ ID NO: 44.

10. The CD27L antigen binding protein of claim 9, wherein

a) the light chain variable domain comprises an LCDR1 as set forth in SEQ ID NO:74; an LCDR2 sequence as set forth in SEQ ID NO:82; and an LCDR3 sequence as set forth in SEQ ID NO:90; and the heavy chain variable domain comprises an HCDR1 as set forth in SEQ ID NO:28; an HCDR2 sequence as set forth in SEQ ID NO:36; and an HCDR3 sequence as set forth in SEQ ID NO:44;

b) the light chain variable domain is defined as in a) but has an R24K-S26G mutation, and the heavy chain variable domain is defined as in a) but has an N31S-I34M mutation;

c) the light chain variable domain is defined as in a) but has an R24K-S26G mutation, and the heavy chain variable domain is defined as in a);

d) the light chain variable domain is defined as in a) but has an L55I-Y58F mutation, and the heavy chain variable domain is defined as in a);

e) the light chain variable domain is defined as in a) but has a Q95N-T96S mutation, and the heavy chain variable domain is defined as in a) but has an N31S-I34M mutation; or

f) the light chain variable domain is defined as in a) but has a Q95N-T96S mutation, and the heavy chain variable domain is defined as in a).

11. The CD27L antigen binding protein of any of claims 1-10, wherein the antigen binding protein specifically binds human CD27L with an affinity of less than or equal to 2×10^{-11} M.

12. The CD27L antigen binding protein of any of claims 1-11, wherein the antigen binding protein inhibits binding of CD27L to CD27.

13. The CD27L antigen binding protein of any of claims 1-12, wherein the antigen binding protein is an antibody.

14. The CD27L antigen binding protein of claim 13, wherein the antibody is a human antibody.

15. The CD27L antigen binding protein of claim 14 comprising a light chain and a heavy chain, wherein the light chain comprises the amino acid sequence set forth in SEQ ID NO: 58 and the heavy chain comprises the amino acid sequence set forth in SEQ ID NO: 12.

16. The CD27L antigen binding protein of any of claims 1-15, wherein the CD27L antigen binding protein is a bispecific antibody.

17. The CD27L antigen binding protein of claim 16, wherein the bispecific antibody binds CD27L and a human effector cell antigen which is CD3.

18. The CD27L antigen binding protein of any one of claims 1-17, wherein the CD27L antigen binding protein is an antibody fragment.

19. The CD27L antigen binding protein of claim 18, wherein the antibody fragment is selected from the group consisting of F(ab), Fab fragments consisting of VL, VH, CL and CH1 domains, F(ab'), F(ab')2, Fd fragments consisting of the VH and CH1 domains, Fv, Fv fragments consisting of the VL and VH domains of a single antibody, dAb fragments, single chain Fv molecules (scFv), bispecific single chain Fv dimers, diabodies and triabodies.

20. The CD27L antigen binding protein of any of claims 1-19, wherein the CD27L antigen binding protein is conjugated to a chemotherapeutic agent.

21. The CD27L antigen binding protein of claim 20, wherein a linker conjugates the chemotherapeutic agent to the CD27L antigen binding protein.

22. The CD27L antigen binding protein of claim 21, wherein the linker is a non-cleavable linker.

23. The CD27L antigen binding protein of claim 22, wherein the linker comprises MCC.

24. The CD27L antigen binding protein of any of claims 20-23, wherein the chemotherapeutic agent is conjugated to one or more lysines contained within a polypeptide of the CD27L antigen binding protein.

25. The CD27L antigen binding protein of any of claims 20-24, wherein the chemotherapeutic agent is DM1.

26. A composition of CD27L antigen binding proteins of claim 25, wherein the average number of DM1 molecules per CD27L antigen binding protein is between 1 and 10.

27. The composition of CD27L antigen binding proteins of claim 26, wherein the average number of DM1 molecules per CD27L antigen binding protein is between 3 and 7.

28. The composition of CD27L antigen binding proteins of claim 27, wherein the average number of DM1 molecules per CD27L antigen binding protein is between 4 and 6.

29. The composition of CD27L antigen binding proteins of claim 27, wherein the average number of DM1 molecules per CD27L antigen binding protein is about 4.0, about 4.1, about 4.2, about 4.3, about 4.4, about 4.5, about 4.6, about 4.7, about 4.8, about 4.9, about 5.0, about 5.1, about 5.2, about 5.3, about 5.4, about 5.5, about 5.6, about 5.7, about 5.8, about 5.9, or about 6.0.

30. The composition of CD27L antigen binding proteins of any of claims 26-29, wherein the composition is a pharmaceutical composition comprising a therapeutically effective amount of the CD27L antigen binding protein.

31. The composition of CD27L antigen binding proteins of claim 30, wherein the pharmaceutical composition is lyophilized.

32. An isolated nucleic acid encoding a polypeptide, said polypeptide comprising:

a) a light chain variable domain having at least 95% identity to the amino acid sequence set forth in SEQ ID NO:66;

b) a heavy chain variable domain having at least 95% identity to the amino acid sequence set forth in SEQ ID NO:20;

c) a light chain variable domain having no more than five amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO:66;

d) a heavy chain variable domain having no more than five amino acid additions, deletions or substitutions from the amino acid sequence set forth in SEQ ID NO:20;

e) a light chain variable domain comprising an LCDR1 having no more than three amino acid additions, deletions, or substitutions from the LCDR1 sequence set forth in SEQ ID NO:74; an LCDR2 having no more than three amino acid additions, deletions, or substitutions from the LCDR2 sequence set forth in SEQ ID NO:82; and an LCDR3 having no more than three amino acid additions, deletions, or substitutions from the LCDR3 sequence set forth in SEQ ID NO:90;

f) a heavy chain variable domain comprising

an HCDR1 having no more than three amino acid additions, deletions, or substitutions from the HCDR1 sequence set forth in SEQ ID NO:28; an HCDR2 having no more than three amino acid additions, deletions, or substitutions from the HCDR2 sequence set forth in SEQ ID NO:36; and an HCDR3 having no more than three amino acid additions, deletions, or substitutions from the HCDR3 sequence set forth in SEQ ID NO:44;g) a light chain variable domain comprising an LCDR1 having the sequence set forth in SEQ ID NO: 74, an LCDR2 having the sequence set forth in SEQ ID NO: 82, and an LCDR3 having the sequence set forth in SEQ ID NO: 90;

h) a heavy chain variable domain comprising an HCDR1 having the sequence set forth in SEQ ID NO: 28, an HCDR2 having the sequence set forth in SEQ ID NO: 36, and an HCDR3 having the sequence set forth in SEQ ID NO: 44;

i) a light chain variable domain as defined in g) but having an R24K-S26G mutation, an L55I-Y58F mutation or a Q95N-T96S mutation; or

j) a heavy chain variable domain as defined in h) but having an N31S-I34M mutation

33. The isolated nucleic acid of claim 32, wherein the polypeptide comprises an antibody light chain.

34. The isolated nucleic acid of claim 33, wherein the light chain is encoded by a nucleic acid comprising a nucleotide sequence at least 80% identical to the nucleotide sequence set forth in SEQ ID NO: 51.

35. The isolated nucleic acid of claim 34, wherein the light chain is encoded by a nucleic acid comprising a nucleotide sequence at least 90% identical to the nucleotide sequence set forth in SEQ ID NO: 51.

36. The isolated nucleic acid of claim 35, wherein the light chain is encoded by a nucleic acid comprising a nucleotide sequence at least 95% identical to the nucleotide sequence set forth in SEQ ID NO: 51.

37. The isolated nucleic acid of claim 36, wherein the light chain is encoded by a nucleic acid comprising a nucleotide sequence set forth in SEQ ID NO: 51.

38. The isolated nucleic acid of claim 32, wherein the polypeptide comprises an antibody heavy chain.

39. The isolated nucleic acid of claim 38, wherein the heavy chain is encoded by a nucleic acid comprising a nucleotide sequence at least 80% identical to the nucleotide sequence set forth in SEQ ID NO: 5.

40. The isolated nucleic acid of claim 39, wherein the heavy chain is encoded by a nucleic acid comprising a nucleotide sequence at least 90% identical to the nucleotide sequence set forth in SEQ ID NO: 5.

41. The isolated nucleic acid of claim 40, wherein the heavy chain is encoded by a nucleic acid comprising a nucleotide sequence at least 95% identical to the nucleotide sequence set forth in SEQ ID NO: 5.

42. The isolated nucleic acid of claim 41, wherein the heavy chain is encoded by a nucleic acid comprising a nucleotide sequence set forth in SEQ ID NO: 5.

43. An expression vector comprising the isolated nucleic acid of any of claims 32-42.

44. The expression vector of claim 43, wherein the isolated nucleic acid encodes an antibody light chain.

45. The expression vector of claim 43, wherein the isolated nucleic acid encodes an antibody heavy chain.

46. The expression vector of claim 44, further comprising an isolated nucleic acid encoding an antibody heavy chain.

47. A recombinant host cell comprising an isolated nucleic acid of any of claims 32-42 operably linked to a promoter.

48. A recombinant host cell comprising an expression vector of claim 44 or 45.

49. The recombinant host cell of claim 48, wherein the host cell comprises an expression vector of claim 44 and 45.

50. The recombinant host cell of claim 49, wherein the host cell secretes an antibody that binds CD27L.

51. The recombinant host cell of any of claims 47-50, wherein the cell is of mammalian origin.

52. The recombinant host cell of claim 51, wherein the cell is a Chinese hamster ovary (CHO) cell line.

53. A method of making a CD27L antibody drug conjugate, said method comprising the steps of:

a) providing a CD27L antigen binding protein of any one of claims 1-19;

b) conjugating the CD27L antigen binding protein to a linker; and

c) conjugating a drug to said linker.

54. A method of making a CD27L antibody drug conjugate, said method comprising the steps of:

a) providing a CD27L antigen binding protein of any one of claims 1-19; and

b) conjugating a linker covalently bound to a drug to said CD27L antigen binding protein.

55. The method of claim 53 or 54, wherein the CD27L antigen binding protein is an antibody.

56. The method of claim 55, wherein the antibody comprises a light chain variable domain amino acid sequence as set forth in SEQ ID NO:66 and a heavy chain variable domain amino acid sequence as set forth in SEQ ID NO:20.

57. The method of claim 56, wherein the antibody is Ab4.

58. The method of any one of claims 53-57, wherein the linker comprises MCC.

59. The method of any one of claims 53-58, wherein the drug comprises DM1.

60. Use of a CD27L antigen binding protein of any one of claims 1-19 in the manufacture of a medicament for treating cancer in a patient.

61. The use of claim 60, wherein the CD27L antigen binding protein is an antibody.

62. The use of claim 61, wherein the antibody comprises a light chain variable domain amino acid sequence as set forth in SEQ ID NO:66 and a heavy chain variable domain amino acid sequence as set forth in SEQ ID NO:20.

63. The use of claim 62, wherein the antibody is Ab4.

64. The use of any one of claims 61-63, wherein a pharmaceutical composition comprises the antibody.

65. The use of claim 64, wherein the antibody comprises enhanced effector function.

66. The use of claim 64, wherein the pharmaceutical composition comprises a population of antibody drug conjugates.

67. The use of claim 66, wherein the antibody drug conjugate comprises an MCC linker.

68. The use of claim 66 or 67, wherein the antibody drug conjugate comprises DM1.

69. The use of claim 68, wherein the average number of DM1 molecules per antibody is between 1 and 10.

70. The use of claim 69, wherein the average number of DM1 molecules per antibody is between 3 and 7.

71. The use of claim 70, wherein the average number of DM1 molecules per antibody is between 4 and 6.

72. The use of claim 71, wherein the average number of DM1 molecules per antibody is about 4.0, about 4.1, about 4.2, about 4.3, about 4.4, about 4.5, about 4.6, about 4.7, about 4.8, about 4.9, about 5.0, about 5.1, about 5.2, about 5.3, about 5.4, about 5.5, about 5.6, about 5.7, about 5.8, about 5.9, or about 6.0.

73. The use of any of claims 60-72, wherein a sample from the patient is tested for CD27L expression.

74. The use of claim 73, wherein the sample is tested for CD27L mRNA expression.

75. The use of claim 73, wherein the sample is tested for CD27L protein expression.

76. The use of any one of claims 73-75, wherein the sample is a blood sample.

77. The use of any one of claims 73-75, wherein the sample is a biopsy.

78. The use of any one of claims 60-77, wherein the cancer is renal cell carcinomas (RCC), clear cell RCC, head and neck cancer, glioblastoma, breast cancer, brain tumor, nasopharangeal carcinoma, non-Hodgkin's lymphoma (NHL), acute lymphocytic leukemia (ALL), chronic lymphocytic leukemia (CLL), Burkitt's lymphoma, anaplastic large-cell lymphomas (ALCL), multiple myeloma, cutaneous T-cell lymphomas, nodular small cleaved-cell lymphomas, lymphocytic lymphomas, peripheral T-cell lymphomas, Lennert's lymphomas, immunoblastic lymphoma, T-cell leukemia/lymphomas (ATLL), adult T-cell leukemia (T-ALL), centroblastic/centrocytic (cb/cc) follicular lymphoma cancer, diffuse large cell lymphoma of B lineage, angioimmunoblastic lymphadenopathy (AILD)-like T cell lymphoma, HIV associated body cavity based lymphoma, embryonal carcinoma, undifferentiated carcinoma of the rhino-pharynx, Castleman's disease, Kaposi's Sarcoma, multiple myeloma, Waldenstrom's macroglobulinemia or other B-cell lymphoma.

79. The use of claim 78, wherein the cancer is RCC.

80. The use of claim 78, wherein the cancer is NHL.

81. The use of claim 78, wherein the cancer is CLL.

82. Use of a CD27L antigen binding protein of any one of claims 1-19 in the manufacture of a medicament for treating an autoimmune or inflammatory disorder in a patient.

83. The use of claim 82, wherein the CD27L antigen binding protein is an antibody.

84. The use of claim 83, wherein the antibody comprises a light chain variable domain amino acid sequence as set forth in SEQ ID NO:66 and a heavy chain variable domain amino acid sequence as set forth in SEQ ID NO:20.

85. The use of claim 84, wherein the antibody is Ab4.

86. The use of claim 82, wherein the antigen binding protein inhibits binding of CD27 to CD27L.

87. The use of any one of claims 82-86, wherein the autoimmune or inflammatory disorder is systemic lupus erythematosus (SLE), insulin dependent diabetes mellitus (IDDM), inflammatory bowel disease (IBD), multiple sclerosis (MS), psoriasis, autoimmune thyroiditis, rheumatoid arthritis (RA), or glomerulonephritis.

88. The use of any of claims 82-86, wherein the treatment inhibits or prevents transplant rejection in the patient.

89. The use of any of claims 82-86, wherein the treatment inhibits or prevents graft versus host disease (GVHD).