

WHAT IS CLAIMED IS:

1. ~~An isolated ILT7 binding protein that can bind to the same ILT7 epitope as an antibody comprising a heavy chain variable region (VH) of SEQ ID NO:202 and a light chain variable region (VL) of SEQ ID NO:207.~~
2. ~~An isolated ILT7 binding protein that competitively inhibits the binding to ILT7 of an antibody comprising a VH of SEQ ID NO:202 and a VL of SEQ ID NO:207.~~
- 3.1. ~~An isolated ILT7 binding protein~~ anti-Immunoglobulin-like transcript-7 (ILT7) antibody comprising Complementarity-Determining Regions (CDRs) HCDR1, HCDR2, HCDR3, LCDR1, LCDR2, and LCDR3 ~~comprising the,~~ wherein the HCDR1, HCDR2, HCDR3, LCDR1, LCDR2, and LCDR3 comprise the amino acid sequences of SEQ ID NOs: 203, 204, 205, 208, 209, and 210, respectively.
- 4.2. ~~The isolated anti-ILT7 antibody binding protein of any one of claims 1-3, wherein the antibody ILT7 binding protein comprises a heavy chain variable region (VH) at least 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to SEQ ID NO:202 and/or a light chain variable region (VL), wherein the VH and VL regions comprise an amino acid sequence at least 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to SEQ ID NO:202 and SEQ ID NO:207, respectively.~~
- 5.3. ~~The isolated anti-ILT7 antibody ILT7 binding protein of claim 24, wherein the ILT7 binding protein comprises a VH and VL regions comprise the amino acid sequence of comprising SEQ ID NO:202 and a VL comprising SEQ ID NO:207, respectively.~~
6. ~~An isolated ILT7 binding protein comprising a VH comprising SEQ ID NO:202.~~
7. ~~An isolated ILT7 binding protein comprising a VL comprising SEQ ID NO:207.~~
8. ~~An isolated ILT7 binding protein that can bind to the same ILT7 epitope as an antibody comprising a VH and a VL selected from the group consisting of~~

~~SEQ ID NO:12 and SEQ ID NO:17, respectively;~~
~~SEQ ID NO:22 and SEQ ID NO:27, respectively;~~

~~SEQ ID NO:32 and SEQ ID NO:37, respectively;
SEQ ID NO:42 and SEQ ID NO:47, respectively;
SEQ ID NO:52 and SEQ ID NO:57, respectively;
SEQ ID NO:62 and SEQ ID NO:67, respectively;
SEQ ID NO:72 and SEQ ID NO:77, respectively;
SEQ ID NO:82 and SEQ ID NO:87, respectively;
SEQ ID NO:92 and SEQ ID NO:97, respectively;
SEQ ID NO:102 and SEQ ID NO:107, respectively;
SEQ ID NO:112 and SEQ ID NO:117, respectively;
SEQ ID NO:122 and SEQ ID NO:127, respectively;
SEQ ID NO:132 and SEQ ID NO:137, respectively;
SEQ ID NO:142 and SEQ ID NO:147, respectively;
SEQ ID NO:152 and SEQ ID NO:157, respectively;
SEQ ID NO:162 and SEQ ID NO:167, respectively;
SEQ ID NO:172 and SEQ ID NO:177, respectively;
SEQ ID NO:182 and SEQ ID NO:187, respectively;
SEQ ID NO:192 and SEQ ID NO:197, respectively;
SEQ ID NO:212 and SEQ ID NO:217, respectively;
SEQ ID NO:222 and SEQ ID NO:227, respectively;
SEQ ID NO:232 and SEQ ID NO:237, respectively; and
SEQ ID NO:242 and SEQ ID NO:247, respectively.~~

9. ~~An ILT7 isolated binding molecule that competitively inhibits the binding to ILT7 of an antibody comprising a VH and VL selected from the group consisting of~~

~~SEQ ID NO:12 and SEQ ID NO:17, respectively;
SEQ ID NO:22 and SEQ ID NO:27, respectively;
SEQ ID NO:32 and SEQ ID NO:37, respectively;
SEQ ID NO:42 and SEQ ID NO:47, respectively;
SEQ ID NO:52 and SEQ ID NO:57, respectively;
SEQ ID NO:62 and SEQ ID NO:67, respectively;
SEQ ID NO:72 and SEQ ID NO:77, respectively;
SEQ ID NO:82 and SEQ ID NO:87, respectively;~~

~~SEQ ID NO:92 and SEQ ID NO:97, respectively;
SEQ ID NO:102 and SEQ ID NO:107, respectively;
SEQ ID NO:112 and SEQ ID NO:117, respectively;
SEQ ID NO:122 and SEQ ID NO:127, respectively;
SEQ ID NO:132 and SEQ ID NO:137, respectively;
SEQ ID NO:142 and SEQ ID NO:147, respectively;
SEQ ID NO:152 and SEQ ID NO:157, respectively;
SEQ ID NO:162 and SEQ ID NO:167, respectively;
SEQ ID NO:172 and SEQ ID NO:177, respectively;
SEQ ID NO:182 and SEQ ID NO:187, respectively;
SEQ ID NO:192 and SEQ ID NO:197, respectively;
SEQ ID NO:212 and SEQ ID NO:217, respectively;
SEQ ID NO:222 and SEQ ID NO:227, respectively;
SEQ ID NO:232 and SEQ ID NO:237, respectively; and
SEQ ID NO:242 and SEQ ID NO:247, respectively.~~

- ~~10. An ILT7 isolated binding molecule comprising CDRs: HCDR1, HDR2, HCDR3, LCDR1, LCDR2, and LCDR3 selected from the group consisting of~~

~~SEQ ID NOS: 13, 14, 15, 18, 19, and 20, respectively;
SEQ ID NOS: 23, 24, 25, 28, 29, and 30, respectively;
SEQ ID NOS: 33, 34, 35, 38, 39, and 40, respectively;
SEQ ID NOS: 103, 104, 105, 108, 109, and 110, respectively;
SEQ ID NOS: 213, 214, 215, 218, 219, and 220, respectively;
SEQ ID NOS: 223, 224, 225, 228, 229, and 230, respectively;
SEQ ID NOS: 233, 234, 235, 238, 239, and 240, respectively; and
SEQ ID NOS: 243, 244, 245, 248, 249, and 250, respectively.~~

- ~~11. The isolated ILT7 binding protein of any one of claims 8-10, wherein said ILT7 binding molecule comprises a VH and a VL at least 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to:~~

~~SEQ ID NO:12 and SEQ ID NO:17, respectively;
SEQ ID NO:22 and SEQ ID NO:27, respectively;~~

~~SEQ ID NO:32 and SEQ ID NO:37, respectively;~~
~~SEQ ID NO:42 and SEQ ID NO:47, respectively;~~
~~SEQ ID NO:52 and SEQ ID NO:57, respectively;~~
~~SEQ ID NO:62 and SEQ ID NO:67, respectively;~~
~~SEQ ID NO:72 and SEQ ID NO:77, respectively;~~
~~SEQ ID NO:82 and SEQ ID NO:87, respectively;~~
~~SEQ ID NO:92 and SEQ ID NO:97, respectively;~~
~~SEQ ID NO:102 and SEQ ID NO:107, respectively;~~
~~SEQ ID NO:112 and SEQ ID NO:117, respectively;~~
~~SEQ ID NO:122 and SEQ ID NO:127, respectively;~~
~~SEQ ID NO:132 and SEQ ID NO:137, respectively;~~
~~SEQ ID NO:142 and SEQ ID NO:147, respectively;~~
~~SEQ ID NO:152 and SEQ ID NO:157, respectively;~~
~~SEQ ID NO:162 and SEQ ID NO:167, respectively;~~
~~SEQ ID NO:172 and SEQ ID NO:177, respectively;~~
~~SEQ ID NO:182 and SEQ ID NO:187, respectively;~~
~~SEQ ID NO:192 and SEQ ID NO:197, respectively;~~
~~SEQ ID NO:212 and SEQ ID NO:217, respectively;~~
~~SEQ ID NO:222 and SEQ ID NO:227, respectively;~~
~~SEQ ID NO:232 and SEQ ID NO:237, respectively; or~~
~~SEQ ID NO:242 and SEQ ID NO:247, respectively.~~

12. — The ILT7-binding molecule of claim 11, wherein said VH and VL comprise

~~SEQ ID NO:12 and SEQ ID NO:17, respectively;~~
~~SEQ ID NO:22 and SEQ ID NO:27, respectively; —~~
~~SEQ ID NO:32 and SEQ ID NO:37, respectively;~~
~~SEQ ID NO:42 and SEQ ID NO:47, respectively;~~
~~SEQ ID NO:52 and SEQ ID NO:57, respectively;~~
~~SEQ ID NO:62 and SEQ ID NO:67, respectively;~~
~~SEQ ID NO:72 and SEQ ID NO:77, respectively;~~
~~SEQ ID NO:82 and SEQ ID NO:87, respectively;~~
~~SEQ ID NO:92 and SEQ ID NO:97, respectively;~~

~~SEQ ID NO:102 and SEQ ID NO:107, respectively;
SEQ ID NO:112 and SEQ ID NO:117, respectively;
SEQ ID NO:122 and SEQ ID NO:127, respectively;
SEQ ID NO:132 and SEQ ID NO:137, respectively;
SEQ ID NO:142 and SEQ ID NO:147, respectively;
SEQ ID NO:152 and SEQ ID NO:157, respectively;
SEQ ID NO:162 and SEQ ID NO:167, respectively;
SEQ ID NO:172 and SEQ ID NO:177, respectively;
SEQ ID NO:182 and SEQ ID NO:187, respectively;
SEQ ID NO:192 and SEQ ID NO:197, respectively;
SEQ ID NO:212 and SEQ ID NO:217, respectively;
SEQ ID NO:222 and SEQ ID NO:227, respectively;
SEQ ID NO:232 and SEQ ID NO:237, respectively; or
SEQ ID NO:242 and SEQ ID NO:247, respectively.~~

- ~~13. An isolated ILT7 binding molecule, wherein said ILT7 binding molecule comprises a VH comprising SEQ ID NO: 12, 22, 32, 42, 52, 62, 72, 82, 92, 102, 112, 122, 132, 142, 152, 162, 172, 182, 192, 212, 222, 232, or 242.~~
- ~~14. An isolated ILT7 binding molecule, wherein said ILT7 binding molecule comprises a VL comprising SEQ ID NO: 17, 27, 37, 47, 57, 67, 77, 87, 97, 107, 117, 127, 137, 147, 157, 167, 177, 187, 197, 217, 227, 237, or 247.~~
- ~~15. The isolated ILT7 binding molecule according to any one of claims 1-14, which comprises an antibody or antigen binding fragment thereof.~~
- ~~16. The isolated ILT7 binding molecule according to claim 15, wherein the antibody or antigen binding fragment thereof is afucosylated.~~
- ~~17. The isolated ILT7 binding molecule according to any one of claims 8-16, wherein the binding molecule binds to the Ig1 region of ILT7.~~
- ~~18. The isolated ILT7 binding molecule according to any one of claims 8-16, wherein the binding molecule binds to the Ig2 region of ILT7.~~

- ~~19. The isolated ILT7 binding molecule according to any one of claims 1-18, wherein the binding molecule binds to human and cynomolgus ILT7.~~
- ~~20. The isolated ILT7 binding molecule according to any one of claims 1-19, wherein the binding molecule suppresses interferon (IFN) alpha release from peripheral blood mononuclear cells (PBMCs).~~
- ~~21. The isolated ILT7 binding molecule according to any one of claims 1-20, wherein the binding molecule has ADCC activity against plasmacytoid dendritic cells (pDCs) in PMBCs.~~
- ~~22. The isolated ILT7 binding molecule according to any one of claims 1-21, which comprises a murine, human, chimeric, humanized, or resurfaced antibody or antigen-binding fragment thereof.~~
- ~~23. The isolated ILT7 binding molecule according to any one of claims 1-22, which comprises an antibody, Fab, Fab', F(ab')₂, Fd, single chain Fv or scFv, disulfide linked Fv, V-NAR domain, IgNar, intrabody, IgGACH2, minibody, F(ab')₃, tetrabody, triabody, diabody, single domain antibody, DVD-Ig, Fcab, mAb2, (scFv)₂, or scFv-Fc.~~
- ~~24. The isolated ILT7 binding molecule according to any one of claims 1-23, which comprises a monoclonal antibody or an antigen binding fragment thereof.~~
- ~~25.4. The isolated anti-ILT7 antibody-binding molecule according to any one of claims 1-24, wherein the antibody binding molecule comprises a heavy chain immunoglobulin constant domain selected from the group consisting of:~~
 - ~~(a) an IgA constant domain;~~
 - ~~(b) an IgD constant domain;~~
 - ~~(c) an IgE constant domain;~~
 - ~~(d) an IgG1 constant domain;~~
 - ~~(e) an IgG2 constant domain;~~
 - ~~(f) an IgG3 constant domain;~~
 - ~~(g) an IgG4 constant domain; and~~
 - ~~(h) an IgM constant domain.~~

5. The anti-ILT7 antibody of claim 4, wherein the antibody comprises an IgG1 constant domain.
- ~~26.6. The isolated anti-ILT7 antibody-binding molecule according to any one of claims 1-25,~~
wherein the antibody-binding molecule comprises a light chain immunoglobulin constant domain selected from the group consisting of:
- ~~(a)~~ an Ig kappa constant domain; and
 - ~~(b)~~ an Ig lambda constant domain.
- ~~27.7. The isolated anti-ILT7 antibody-binding molecule according to any one of claims 1-26,~~
wherein the antibody-binding molecule comprises a ~~human IgG1 constant domain and a human~~ lambda constant domain.
8. The anti-ILT7 antibody according to claim 1, wherein the antibody is a monoclonal antibody.
9. The anti-ILT7 antibody according to claim 1, wherein the antibody is a human, chimeric, or resurfaced antibody.
10. The anti-ILT7 antibody of claim 9, wherein the antibody is a human antibody.
11. The anti-ILT7 antibody according to claim 1, wherein the antibody is afucosylated.
12. The anti-ILT7 antibody according to claim 1, wherein the antibody specifically binds to human and cynomolgus ILT7.
13. An afucosylated, human, monoclonal anti-ILT7 antibody comprising:
 - i. Complementarity-Determining Regions (CDRs) HCDR1, HCDR2, HCDR3, LCDR1, LCDR2, and LCDR3;
 - ii. a human IgG1 constant domain; and
 - iii. a human lambda constant domain,wherein the HCDR1, HCDR2, HCDR3, LCDR1, LCDR2, and LCDR3 comprise the amino acid sequences of SEQ ID NOs:203, 204, 205, 208, 209, and 210, respectively.
- ~~28. An isolated host cell producing the binding molecule of any one of claims 1-27.~~

- ~~29.14. An isolated polynucleotide comprising a nucleic acid encoding a VH, wherein the anti-ILT7 antibody of claim 1-VH comprises an amino acid sequence at least 85%, 90%, 95% identical, or identical to the VH of SEQ ID NO: 202, 12, 22, 32, 42, 52, 62, 72, 82, 92, 102, 112, 122, 132, 142, 152, 162, 172, 182, 192, 212, 222, 232, or 242.~~
- ~~30. The polynucleotide of claim 29 comprising a sequence at least 85%, 90%, 95% identical, or identical to SEQ ID NO:201, 11, 21, 31, 41, 51, 61, 71, 81, 91, 101, 111, 121, 131, 141, 151, 161, 171, 181, 191, 211, 221, 231, or 241.~~
- ~~31. An isolated polynucleotide comprising a nucleic acid encoding a VL, wherein the VL comprises an amino acid sequence at least 85%, 90%, 95% identical, or identical to the VL of 207, 17, 27, 47, 57, 67, 77, 87, 97, 107, 117, 127, 137, 147, 157, 167, 177, 187, 197, 217, 227, 237, or 247.~~
- ~~32. The polynucleotide of claim 31 comprising a sequence at least 85%, 90%, 95% identical, or identical to SEQ ID NO: 206, 16, 26, 36, 46, 56, 66, 76, 86, 96, 106, 116, 126, 136, 146, 156, 166, 176, 186, 196, 216, 226, 236, or 246.~~
- ~~33. The polynucleotide of any one of claims 29-32, wherein the nucleic acid is operably linked to a control sequence.~~
- ~~34. The polynucleotide of any one of claims 29-33, wherein an antibody or antigen-binding fragment thereof comprising said VH or said VL can specifically bind to ILT7.~~
- ~~35. A polynucleotide encoding the ILT7 binding molecule of any one of claims 1-27.~~
- ~~36. A vector comprising the polynucleotide of any one of claims 29-35.~~
- ~~37. The polypeptide encoded by the polynucleotide of any one of claims 29-35.~~
- ~~38. A host cell transformed with the polynucleotide of claim 29 or 30 and the polynucleotide of claim 31 or 32.~~
- ~~39.15. An isolated host cell comprising the polynucleotide of any one of claims 14-29-35, the vector of claim 36, or the polypeptide of claim 37.~~
- ~~40. The host cell of claim 38 or 39, wherein the host cell is a mammalian host cell.~~

- ~~41. The mammalian host cell of claim 40, wherein the host cell is a NS0 murine myeloma cell, a PER.C6[®] human cell, or a Chinese hamster ovary (CHO) cells.~~
- ~~42. The host cell of any one of claims 38-41, wherein the host cell lacks the enzyme α -1,6-fucosyltransferase.~~
- ~~43.16. A method of producing an anti-ILT7 antibody binding molecule, comprising culturing the isolated host cell of claim 15 ~~any one of claims 38-42~~, and recovering said ~~binding molecule~~ antibody.~~
- ~~44. An anti-ILT7 binding molecule, produced by the method of claim 43.~~
- ~~45.17. A method for detecting ILT7 expression in a sample comprising (a) contacting said sample with the anti-ILT7 antibody of claim 1 ~~binding molecule of any one of claims 1-27 or 44~~ and (b) detecting binding of said ~~antibody binding molecule~~ in said sample.~~
- ~~46.18. A method for ~~detecting~~ decreasing interferon (IFN)-alpha release from a plasmacytoid dendritic cells (pDC) comprising (a) ~~contacting a sample containing cells~~ pDC with the anti-ILT7 antibody of claim 1 ~~binding molecule of any one of claims 1-27 or 44~~ and (b) ~~detecting binding of said binding molecule in said sample~~.~~
19. The anti-ILT7 antibody of claim 1 for use in therapy.
20. Use of the anti-ILT7 antibody of claim 1 in the manufacture of a medicament for the treatment of an autoimmune disease, wherein the autoimmune disease is selected from the group consisting of: myositis, diabetes, Hashimoto's disease, autoimmune adrenal insufficiency, pure red cell anemia, multiple sclerosis, rheumatoid carditis, systemic lupus erythematosus, psoriasis, rheumatoid arthritis, chronic inflammation, Sjogren's syndrome, polymyositis, dermatomyositis, inclusion body myositis, juvenile myositis, and scleroderma.
21. The use of claim 20, wherein the autoimmune disease is systemic lupus erythematosus.
22. An afucosylated IgG1 human monoclonal anti-ILT7 antibody comprising a heavy chain variable region (VH) and a light chain variable region (VL), wherein the heavy chain

variable region comprises the amino acid of SEQ ID NO:202 and the light chain variable region comprises the amino acid of SEQ ID NO:207.

23. The anti-ILT7 antibody of claim 22, wherein the antibody comprises a human IgG1 constant domain; and a human lambda constant domain.

47.24. A pharmaceutical composition comprising afucosylated IgG1 human monoclonal anti-ILT7 antibody of claim 22 (a) the ILT7 binding molecule of any one of claims 1-27 or 44, the polynucleotide of any one of claims 29-35, the vector of claim 36, the polypeptide of claim 37, or the host cell of claim 28 or 38-42 and (b) a carrier.

~~48. A method for decreasing IFN-alpha release from a plasmacytoid dendritic cell, comprising contacting a plasmacytoid dendritic cell with the binding molecule of any one of claims 1-27 or 44, the polynucleotide of any one of claims 29-35, the vector of claim 36, the polypeptide of claim 37, the host cell of claim 28 or 38-42, or the composition of claim 47.~~

~~49. A method for treating a human subject with an autoimmune disease comprising administering to the subject an effective amount of the binding molecule of any one of claims 1-27 or 44, the polynucleotide of any one of claims 29-35, the vector of claim 36, the polypeptide of claim 37, the host cell of claim 28 or 38-42, or the composition of claim 47.~~

~~50. A method for preventing an autoimmune disease in a human subject comprising administering to the subject an effective amount the binding molecule of any one of claims 1-27 or 44, the polynucleotide of any one of claims 29-35, the vector of claim 36, the polypeptide of claim 37, the host cell of claim 28 or 38-42, or the composition of claim 47.~~

~~51. The method of claim 49 or 50, wherein said autoimmune disease is systemic lupus erythematosus.~~

~~52. The method of claim 49 or 50, wherein said autoimmune disease is chronic rheumatism.~~