CLAIMS

1. An isolated antibody that ~~binds~~ specifically binds to human ILT4 (hILT4~~ or ILT4~~), the antibody comprising a heavy chain and a light chain, wherein the heavy chain comprises a heavy chain variable region (VH) comprising VH complementary determining region 1 (CDR1), CDR2 and CDR3 comprising the amino acid sequences of SEQ ID Nos: 155, 156, and 157, respectively, and wherein the light chain comprises a light chain variable region (VL) comprising VL CDR1, CDR2 and CDR3 comprising the amino acid sequences of SEQ ID Nos: 158, 159, and 160, respectively ~~and further comprising one or more of the following characteristics:~~

- ~~specific binding to hILT4 (e.g. comprising the amino acid sequence of SEQ ID NO: 108, 109, 111, 112, or 119), e.g., with a K_D of 10^{-8} M or less, or of 10^{-9} M or less;~~
- ~~lack of specific binding to hILT2, hILT3, and/or hILT5;~~
- ~~lack of specific binding to one or more members of the LILRA and/or LILRB families;~~
- ~~stimulates T cell activation, e.g., in a mixed lymphocyte reaction (MLR) assay, as measured by increased T cell proliferation or IFN-gamma secretion, e.g., as shown in an assay described in the Examples;~~
- ~~stimulates differentiation or activation of monocytes into macrophages, e.g., stimulates differentiation of monocytes into pro-inflammatory macrophages, e.g., as shown in an assay described in the Examples;~~
- ~~promotes expression of CD83 and CD86 on human monocyte derived immature dendritic cells (Mo-iDC), e.g., as shown in an assay described in the Examples;~~
- ~~enhances IFN-γ secretion upon antigen stimulation in a cytomegalovirus (CMV) lysate assay, e.g., as shown in an assay described in the Examples;~~
- ~~enhances IFN-γ and TNF-α secretion by CD4+ and CD8+ T cells in an allo-mixed lymphocyte reaction (MLR) assay upon CD3 stimulation, e.g., as shown in an assay described in the Examples;~~
- ~~inhibits binding of HLA-A and/or HLA-B to ILT4;~~
- ~~binds to ^{70}ITRIRPELVKNGQFHIPSITWEHTGRYGCQY^{100} (SEQ ID NO: 122) as determined by hydrogen deuterium exchange (HDX), e.g., as shown in an HDX assay described in the Examples;~~

- competes for binding to hILT4 with an antibody described herein;
- binds specifically to a cyno ILT4 comprising SEQ ID NO: 118, e.g., as shown in a binding assay described in the Examples;
- inhibits binding of human ILT4 (hILT4) to an ILT4 binding partner, such as an MHC class I molecule, such as HLA-A and HLA-B (for example, inhibits binding of hILT4 to both HLA-A and HLA-B);
- has an HLA-A and HLA-B binding profile shown in Fig. 28;
- has a binding profile as shown in Fig 27;
- binds to the following regions of hILT4: (i) ^{70}ITRIRPEL^{77} (SEQ ID NO: 120) and/or ^{78}VKNGQFHIPSITWEHTGRYGCQY^{100} (SEQ ID NO: 121); (ii) ^{70}ITRIRPELVKNGQFHIPSITWEHTGRYGCQY^{100} (SEQ ID NO: 122); or (iii) ^{154}ILCKEGEEEHPQCLNSQPHARGSSRAIF^{181} (SEQ ID NO: 123) and/or ^{425}SSPPPTGPIS^{434} (SEQ ID NO: 124), and, if binding to (i) or (ii), then optionally, not binding significantly to other regions of the extracellular domain of ILT4, such as regions or residues located N-terminal to amino acid I70, wherein the amino acid numbering of hILT4 is that of immature hILT4 (i.e., ILT4 comprising its native signal sequence); and
  - interacts with one or more (or all of) amino acid residues Lys43, Ile49, Thr50 and Arg51 of mature hILT4 or interacts with one or more (or all of) amino acid residues Gly117, Val119, Try120, Leu134, Lys136, Gln149, Pro150, Ile159, Ser161, Val162 ,Gly163, Pro164, Pro167, His173, Try178, Pro183 and Tyr184 of mature hILT4 or interacts with one or more (or all of) amino acid residues Glu42, Lys43, Gly76, Cys77, Leu88, Pro91, Pro183 and Tyr184 of mature hILT4, as determined by carbene foot-printing, e.g., as described in the Examples.

2. The isolated antibody of claim 1, comprising a heavy chain and a light chain, wherein the heavy chain comprises VH CDR1, CDR2 and CDR3 of anti-ILT4 antibody 9G4 (SEQ ID Nos: 125-127), 9C8 (SEQ ID Nos: 131-133), 2H2 (SEQ ID Nos: 137-139), 2E5 (SEQ ID Nos: 143-145), 24E5 (SEQ ID Nos: 149-151), 21D9 (SEQ ID Nos: 155-157), 21A5 (SEQ ID Nos: 161-163), or 10F10 (SEQ ID Nos: 167-169).

3. The isolated antibody of claim 1 or 2, comprising a heavy chain and a light chain, wherein the light chain comprises VL CDR1, CDR2 and CDR3 of anti-ILT4 antibody 9G4 (SEQ ID Nos: 128-130), 9C8 (SEQ ID Nos: 134-136), 2H2 (SEQ ID Nos: 140-142), 2E5 (SEQ ID Nos: 146-148), 24E5 (SEQ ID Nos: 152-154), 21D9 (SEQ ID Nos: 158-160), 21A5 (SEQ ID Nos: 164-166), or 10F10 (SEQ ID Nos: 170-172).

4. The isolated antibody of claim 2, wherein the heavy chain comprises VH CDR1, CDR2 and CDR3 and VL CDR1, CDR2 and CDR3 of anti-ILT4 antibody 9G4 (SEQ ID Nos: 125-130), 9C8 (SEQ ID Nos: 131-136), 2H2 (SEQ ID Nos: 137-142), 2E5 (SEQ ID Nos: 143-148), 24E5 (SEQ ID Nos: 149-154), 21D9 (SEQ ID Nos: 155-160), 21A5 (SEQ ID Nos: 161-166), or 10F10 (SEQ ID Nos: 167-172).

5. The isolated antibody of any one of claims 1-4, which comprises

(a) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 9G4 (SEQ ID Nos: 125-127) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 9G4 (SEQ ID Nos: 128-130);

(b) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 9C8 (SEQ ID Nos: 131-133) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 9C8 (SEQ ID Nos: 134-136);

(c) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 2H2 (SEQ ID Nos: 137-139) and a VL comprising the VL CDR1, CDR2 and CDR3 of 2H2 (SEQ ID Nos: 140-142);

(d) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 2E5 (SEQ ID Nos: 143-145) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 2E5 (SEQ ID Nos: 146-148);

(e) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 24E5 (SEQ ID Nos: 149-151) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 24E5 (SEQ ID Nos: 152-154);

(f) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 21D9 (SEQ ID Nos: 155-157) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 21D9 (SEQ ID Nos: 158-160);

~~(g) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 21D9.b (SEQ ID Nos: 155-157) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 21D9.b (SEQ ID Nos: 158-160);~~

~~(h) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 21D9.c (SEQ ID Nos: 155-157) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 21D9.c (SEQ ID Nos: 158-160);~~

~~(i) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 21D9.d (SEQ ID Nos: 155-157) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 21D9.d (SEQ ID Nos: 158-160);~~

~~(j) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 21D9.e (SEQ ID Nos: 155-157) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 21D9.e (SEQ ID Nos: 158-160);~~

~~(k) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 21A5 (SEQ ID Nos: 161-163) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 21A5 (SEQ ID Nos: 164-166);~~

~~(l) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 21A5.a (SEQ ID Nos: 161-163) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 21A5.a (SEQ ID Nos: 164-166);~~

~~(m) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 10F10 (SEQ ID Nos: 167-169) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 10F10 (SEQ ID Nos: 170-172);~~

~~(n) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 10F10.1 (SEQ ID Nos: 167-169) and a VL comprising the amino acid sequence of VL CDR1, CDR2 and CDR3 of 10F10.1 (SEQ ID Nos: 170-172);~~

~~(o) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 10F10.3 (SEQ ID Nos: 167-169) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 10F10.3 (SEQ ID Nos: 170-172); or~~

~~(p) a VH comprising the amino acid sequence of the VH CDR1, CDR2 and CDR3 of 10F10.4 (SEQ ID Nos: 167-169) and a VL comprising the amino acid sequence of the VL CDR1, CDR2 and CDR3 of 10F10.4 (SEQ ID Nos: 170-172).~~

6. The isolated antibody of any one of claims 1-5, wherein the antibody heavy chain comprises a VH with an amino acid sequence at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the amino acid sequence of the VH of 9G4 (SEQ ID NO: 51, amino acids 20-135), 9C8 (SEQ ID NO: 55), 2H2 (SEQ ID NO: 58), 2E5 (SEQ ID NO: 63), 24E5 (SEQ ID NO: 67), 21D9 (SEQ ID NO: 71), 21D9.b (SEQ ID NO: 74), 21D9.c (SEQ ID NO: 75), 21D9.d (SEQ ID NO: 78), 21D9.e (SEQ ID NO: 80), 21A5 (SEQ ID NO: 83), 21A5.a (SEQ ID NO: 87), 10F10 (SEQ ID NO: 91), 10F10.1 (SEQ ID NO: 91), 10F10.3 (SEQ ID NO: 91), or 10F10.4 (SEQ ID NO: 91).

7. The isolated antibody of any one of claims 1-6, wherein the antibody light chain comprises a VL with an amino acid sequence at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the amino acid sequence of the VL of 9G4 (SEQ ID NO: 50, amino acids 19-125), 9C8 (SEQ ID NO: 54), 2H2 (SEQ ID NO: 59), 2E5 (SEQ ID NO: 62), 24E5 (SEQ ID NO: 66), 21D9 (SEQ ID NO: 70), 21D9.b (SEQ ID NO: 70), 21D9.c (SEQ ID NO: 70), 21D9.d (SEQ ID NO: 70), 21D9.e (SEQ ID NO: 70), 21A5 (SEQ ID NO: 82), 21A5.a (SEQ ID NO: 86), 10F10 (SEQ ID NO: 90), 10F10.1 (SEQ ID NO: 94), 10F10.3 (SEQ ID NO: 96), or 10F10.4 (SEQ ID NO: 114).

8. The isolated antibody of any one of claims 1-7, wherein the antibody heavy chain comprises a VH with an amino acid sequence comprising 1, 2, 3, 4, or 5 amino acid substitutions, conservative substitutions, or reversion substitutions compared to the amino acid sequence of the VH of 9G4 (SEQ ID NO: 51, amino acids 20-135), 9C8 (SEQ ID NO: 55), 2H2 (SEQ ID NO: 58), 2E5 (SEQ ID NO: 63), 24E5 (SEQ ID NO: 67), 21D9 (SEQ ID NO: 71), 21D9.b (SEQ ID NO: 74), 21D9.c (SEQ ID NO: 75), 21D9.d (SEQ ID NO: 78), 21D9.e (SEQ ID NO: 80), 21A5 (SEQ ID NO: 83), 21A5.a (SEQ ID NO: 87), 10F10 (SEQ ID NO: 91), 10F10.1 (SEQ ID NO: 91), 10F10.3 (SEQ ID NO: 91), or 10F10.4 (SEQ ID NO: 91).

9. The isolated antibody of any one of claims 1-8, wherein the antibody light chain comprises a VL with an amino acid sequence comprising 1, 2, 3, 4, or 5 amino acid substitutions, conservative substitutions, or reversion substitutions compared to the amino acid sequence of the VL of 9G4 (SEQ ID NO: 50, amino acids 19-125),

~~9C8 (SEQ ID NO: 54), 2H2 (SEQ ID NO: 59), 2E5 (SEQ ID NO: 62), 24E5 (SEQ ID NO: 66), 21D9 (SEQ ID NO: 70), 21D9.b (SEQ ID NO: 70), 21D9.c (SEQ ID NO: 70), 21D9.d (SEQ ID NO: 70), 21D9.e (SEQ ID NO: 70), 21A5 (SEQ ID NO: 82), 21A5.a (SEQ ID NO: 86), 10F10 (SEQ ID NO: 90), 10F10.1 (SEQ ID NO: 94), 10F10.3 (SEQ ID NO: 96), or 10F10.4 (SEQ ID NO: 114).~~

~~10. The isolated antibody of any one of claims 1-9, wherein the heavy chain comprises the VH of anti-ILT4 antibody 9G4 (SEQ ID NO: 51, amino acids 20-135), 9C8 (SEQ ID NO: 55), 2H2 (SEQ ID NO: 58), 2E5 (SEQ ID NO: 63), 24E5 (SEQ ID NO: 67), 21D9 (SEQ ID NO: 71), 21D9.b (SEQ ID NO: 74), 21D9.c (SEQ ID NO: 75), 21D9.d (SEQ ID NO: 78), 21D9.e (SEQ ID NO: 80), 21A5 (SEQ ID NO: 83), 21A5.a (SEQ ID NO: 87), 10F10 (SEQ ID NO: 91), 10F10.1 (SEQ ID NO: 91), 10F10.3 (SEQ ID NO: 91), or 10F10.4 (SEQ ID NO: 91).~~

~~11. The isolated antibody of any one of claims 1-10, wherein the light chain comprises the VL of anti-ILT4 antibody 9G4 (SEQ ID NO: 50, amino acids 19-125), 9C8 (SEQ ID NO: 54), 2H2 (SEQ ID NO: 59), 2E5 (SEQ ID NO: 62), 24E5 (SEQ ID NO: 66), 21D9 (SEQ ID NO: 70), 21D9.b (SEQ ID NO: 70), 21D9.c (SEQ ID NO: 70), 21D9.d (SEQ ID NO: 70), 21D9.e (SEQ ID NO: 70), 21A5 (SEQ ID NO: 82), 21A5.a (SEQ ID NO: 86), 10F10 (SEQ ID NO: 90), 10F10.1 (SEQ ID NO: 94), 10F10.3 (SEQ ID NO: 96), or 10F10.4 (SEQ ID NO: 114).~~

~~12. The isolated antibody of any one of claims 1-11, which comprises VH and VL of anti-ILT4 antibody 9G4 (SEQ ID NO: 51, amino acids 20-135 and SEQ ID NO: 50, amino acids 19-125), 9C8 (SEQ ID NO: 55 and SEQ ID NO: 54), 2H2 (SEQ ID NO: 58 and SEQ ID NO: 59), 2E5 (SEQ ID NO: 63 and SEQ ID NO: 62), 24E5 (SEQ ID NO: 67 and SEQ ID NO: 66), 21D9 (SEQ ID NO: 71 and SEQ ID NO: 70), 21D9.b (SEQ ID NO: 74 and SEQ ID NO: 70), 21D9.c (SEQ ID NO: 75 and SEQ ID NO: 70), 21D9.d (SEQ ID NO: 78 and SEQ ID NO: 70), 21D9.e (SEQ ID NO: 80 and SEQ ID NO: 70), 21A5 (SEQ ID NO: 83 and SEQ ID NO: 82), 21A5.a (SEQ ID NO: 87 and SEQ ID NO: 86), 10F10 (SEQ ID NO: 91 and SEQ ID NO: 90), 10F10.1 (SEQ ID NO: 91 and SEQ ID NO: 94), 10F10.3 (SEQ ID NO: 91 and SEQ ID NO: 96), or 10F10.4 (SEQ ID NO: 91 and SEQ ID NO: 114).~~

~~13. The isolated antibody of any one of claims 1-11, which comprises:~~

a. a VH comprising the VH CDRs of the VH of 9G4 (SEQ ID Nos: 125-127), and a VL comprising the VL CDRs of 9G4 (SEQ ID Nos: 128-130), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 9G4 (SEQ ID NO: 51, amino acids 20-135 and SEQ ID NO: 50, amino acids 19-125);

b. a VH comprising the VH CDRs of the VH of 9C8 (SEQ ID Nos: 131-133), and a VL comprising the VL CDRs of 9C8 (SEQ ID Nos: 134-136), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 9C8 (SEQ ID NO: 55 and SEQ ID NO: 54);

c. a VH comprising the VH CDRs of the VH of 2H2 (SEQ ID Nos: 137-139), and a VL comprising the VL CDRs of 2H2 (SEQ ID Nos: 140-142), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 2H2 (SEQ ID NO: 58 and SEQ ID NO: 59);

d. a VH comprising the VH CDRs of the VH of 2E5 (SEQ ID Nos: 143-145), and a VL comprising the VL CDRs of 2E5 (SEQ ID Nos: 146-148), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 2E5 (SEQ ID NO: 63 and SEQ ID NO: 62);

e. a VH comprising the VH CDRs of the VH of 24E5 (SEQ ID Nos: 149-151), and a VL comprising the VL CDRs of 24E5 (SEQ ID Nos: 152-154), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 24E5 (SEQ ID NO: 67 and SEQ ID NO: 66);

f. a VH comprising the VH CDRs of the VH of 21D9 (SEQ ID Nos: 155-157), and a VL comprising the VL CDRs of 21D9 (SEQ ID Nos: 158-160), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 21D9 (SEQ ID NO: 71 and SEQ ID NO: 70);

g. a VH comprising the VH CDRs of the VH of 21D9.b (SEQ ID Nos: 155-157), and a VL comprising the VL CDRs of 21D9.b (SEQ ID Nos: 158-160), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 21D9.b (SEQ ID NO: 74 and SEQ ID NO: 70);

h. a VH comprising the VH CDRs of the VH of 21D9.c (SEQ ID Nos: 155-157), and a VL comprising the VL CDRs of 21D9.c (SEQ ID Nos: 158-160), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 21D9.c (SEQ ID NO: 75 and SEQ ID NO: 70);

i. a VH comprising the VH CDRs of the VH of 21D9.d (SEQ ID Nos: 155-157), and a VL comprising the VL CDRs of 21D9.d (SEQ ID Nos: 158-160), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 21D9.d (SEQ ID NO: 78 and SEQ ID NO: 70);

j. a VH comprising the VH CDRs of the VH of 21D9.e (SEQ ID Nos: 155-157), and a VL comprising the VL CDRs of 21D9.e (SEQ ID Nos: 158-160), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 21D9.e (SEQ ID NO: 80 and SEQ ID NO: 70);

k. a VH comprising the VH CDRs of the VH of 21A5 (SEQ ID Nos: 161-163), and a VL comprising the VL CDRs of 21A5 (SEQ ID Nos: 164-166), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 21A5 (SEQ ID NO: 83 and SEQ ID NO: 82);

l. a VH comprising the VH CDRs of the VH of 21A5.a (SEQ ID Nos: 161-163), and a VL comprising the VL CDRs of 21A5.a (SEQ ID Nos: 164-166), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 21A5.a (SEQ ID NO: 87 and SEQ ID NO: 86);

m. a VH comprising the VH CDRs of the VH of 10F10 (SEQ ID Nos: 167-169), and a VL comprising the VL CDRs of 10F10 (SEQ ID Nos: 170-172), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 10F10 (SEQ ID NO: 91 and SEQ ID NO: 90);

n. a VH comprising the VH CDRs of the VH of 10F10.1 (SEQ ID Nos: 167-169), and a VL comprising the VL CDRs of 10F10.1 (SEQ ID Nos: 170-172), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 10F10.1 (SEQ ID NO: 91 and SEQ ID NO: 94);

o. a VH comprising the VH CDRs of the VH of 10F10.3 (SEQ ID Nos: 167-169), and a VL comprising the VL CDRs of 10F10.3 (SEQ ID Nos: 170-172), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 10F10.3 (SEQ ID NO: 91 and SEQ ID NO: 96); or

p. a VH comprising the VH CDRs of the VH of 10F10.4 (SEQ ID Nos: 167-169), and a VL comprising the VL CDRs of 10F10.4 (SEQ ID Nos: 170-172), and VH and VL amino acid sequences that are at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% identical to the VH and VL of 10F10.4 (SEQ ID NO: 91 and SEQ ID NO: 114).

14. The isolated antibody of any one of claims 1-13, which comprises:

a. a VH comprising the amino acid sequence of the VH of 9G4 (SEQ ID NO: 51 residues 20-135) and a VL comprising the amino acid sequence of the VL of 9G4 (SEQ ID NO: 50 residues 19-125);

b. a VH comprising the amino acid sequence of the VH of 9C8 and a VL comprising the amino acid sequence of the VL of 9C8 (SEQ ID NO: 55 and SEQ ID NO: 54);

c. a VH comprising the amino acid sequence of the VH of 2H2 and a VL comprising the amino acid sequence of the VL of 2H2 (SEQ ID NO: 58 and SEQ ID NO: 59);

d. a VH comprising the amino acid sequence of the VH of 2E5 and a VL comprising the amino acid sequence of the VL of 2E5 (SEQ ID NO: 63 and SEQ ID NO: 62);

e. a VH comprising the amino acid sequence of the VH of 24E5 and a VL comprising the amino acid sequence of the VL of 24E5 (SEQ ID NO: 67 and SEQ ID NO: 66);

f. a VH comprising the amino acid sequence of the VH of 21D9 and a VL comprising the amino acid sequence of the VL of 21D9 (SEQ ID NO: 71 and SEQ ID NO: 70);

g. a VH comprising the amino acid sequence of the VH of 21D9.b and a VL comprising the amino acid sequence of the VL of 21D9.b (SEQ ID NO: 74 and SEQ ID NO: 70);

h. a VH comprising the amino acid sequence of the VH of 21D9.c and a VL comprising the amino acid sequence of the VL of 21D9.c (SEQ ID NO: 75 and SEQ ID NO: 70);

i. a VH comprising the amino acid sequence of the VH of 21D9.d and a VL comprising the amino acid sequence of the VL of 21D9.d (SEQ ID NO: 78 and SEQ ID NO: 70);

j. a VH comprising the amino acid sequence of the VH of 21D9.e and a VL comprising the amino acid sequence of the VL of 21D9.e (SEQ ID NO: 80 and SEQ ID NO: 70);

k. a VH comprising the amino acid sequence of the VH of 21A5 and a VL comprising the amino acid sequence of the VL of 21A5 (SEQ ID NO: 83 and SEQ ID NO: 82);

l. a VH comprising the amino acid sequence of the VH of 21A5.a and a VL comprising the amino acid sequence of the VL of 21A5.a (SEQ ID NO: 87 and SEQ ID NO: 86);

m. a VH comprising the amino acid sequence of the VH of 10F10 and a VL comprising the amino acid sequence of the VL of 10F10 (SEQ ID NO: 91 and SEQ ID NO: 90);

n. a VH comprising the amino acid sequence of the VH of 10F10.1 and a VL comprising the amino acid sequence of the VL of 10F10.1 (SEQ ID NO: 91 and SEQ ID NO: 94);

o. a VH comprising the amino acid sequence of the VH of 10F10.3 and a VL comprising the amino acid sequence of the VL of 10F10.3 (SEQ ID NO: 91 and SEQ ID NO: 96); or

p. a VH comprising the amino acid sequence of the VH of 10F10.4 and a VL comprising the amino acid sequence of the VL of 10F10.4 (SEQ ID NO: 91 and SEQ ID NO: 114).

15. The isolated antibody of any one of claims 1-14, which is an IgG antibody.

16. The isolated antibody of claim 15, which is an IgG1, IgG2 or IgG4 antibody, wherein the IgG4 optionally comprises an S228P substitution (EU numbering).

17. The isolated antibody of any one of claims 1-16, wherein the antibody is an effectorless antibody.

18. The isolated antibody of claim 17, wherein the heavy chain constant region comprises 1, 2, 3, 4, or 5 mutations in an otherwise wild type human heavy chain constant region that reduce the effector function of the antibody compared to an antibody without the 1, 2, 3, 4, or 5 mutations but otherwise with the same amino acid sequence.

19. The isolated antibody of any one of claims 1-18, wherein the heavy chain constant region of the antibody comprises an IgG1.3 heavy chain constant region, an IgG1.1 heavy chain constant region, or an IgG1 heavy chain constant region with a P238K (EU numbering) substitution, or an IgG1 heavy chain constant region comprising the amino acid sequence of any one of SEQ ID Nos: 98, 100, 102, 103, or 104.

20. The isolated antibody of any one of claims 1-16, wherein the antibody has effector function.

21. The isolated antibody of claim 20, wherein the antibody is afucosylated (e.g., an afucosylated IgG1 antibody).

22. The isolated antibody of claim 20 or 21, wherein the heavy chain constant region comprises 1, 2, 3, 4, or 5 mutations in an otherwise wild type human heavy chain constant region that enhance the effector function of the antibody compared to an antibody without the 1, 2, 3, 4, or 5 mutations but otherwise with the same amino acid sequence.

23. The isolated antibody of any one of claims 1-22, which comprises the HC of anti-ILT4 antibody 9G4, 9C8, 2H2, 2E5, 24E5, 21D9, 21D9.b, 21D9.c, 21D9.d, 21D9.e, 21A5, 21A5.a, 10F10, 10F10.1 or 10F10.3, wherein the constant region of the HC is IgG1 (e.g. 9G4.IgG1, etc.), IgG1.3 (e.g. 9G4.IgG1.3, etc.), IgG1.1f (e.g. 9G4.IgG1.1f, etc.), IgG4 (e.g., 9G4.IgG4, etc.), or IgG4 S228P (EU numbering) (e.g., 9G4.IgG4_S228P).

24. The isolated antibody of claim 23, wherein the antibody comprises a HC amino acid sequence as follows:

a. IgG1, e.g. 9G4.IgG1, 9G4 (SEQ ID NO: 2), 9C8 (SEQ ID NO: 4), 2H2 (SEQ ID NO: 6), 2E5 (SEQ ID NO: 8), 24E5 (SEQ ID NO: 10), 21D9 (SEQ ID NO: 12), 21D9.b (SEQ ID NO: 74 and SEQ ID NO: 98), 21D9.c (SEQ ID NO: 75 and SEQ ID NO: 98), 21D9.d (SEQ ID NO: 78 and SEQ ID NO: 98), 21D9.e (SEQ ID NO: 80 and SEQ ID NO: 98), 21A5 (SEQ ID NO: 83 and SEQ ID NO: 98), 21A5.a (SEQ ID NO: 87 and SEQ ID NO: 98), 10F10 (SEQ ID NO: 91 and SEQ ID NO: 98), 10F10.1 (SEQ ID NO: 91 and SEQ ID NO: 98), 10F10.3 (SEQ ID NO: 91 and SEQ ID NO: 98), or 10F10.4 (SEQ ID NO: 91 and SEQ ID NO: 98),

b. IgG1, e.g. 9G4.IgG1, 9G4 (SEQ ID NO: 51, amino acids 20-135, and SEQ ID NO: 102), 9C8 (SEQ ID NO: 55 and SEQ ID NO: 102), 2H2 (SEQ ID NO: 58 and SEQ ID NO: 102), 2E5 (SEQ ID NO: 63 and SEQ ID NO: 102), 24E5 (SEQ ID NO: 67 and SEQ ID NO: 102), 21D9 (SEQ ID NO: 71 and SEQ ID NO: 102), 21D9.b (SEQ ID NO: 74 and SEQ ID NO: 102), 21D9.c (SEQ ID NO: 75 and SEQ ID NO: 102), 21D9.d (SEQ ID NO: 78 and SEQ ID NO: 102), 21D9.e (SEQ ID NO: 80 and SEQ ID NO: 102), 21A5 (SEQ ID NO: 83 and SEQ ID NO: 102), 21A5.a (SEQ ID NO: 87 and SEQ ID NO: 102), 10F10 (SEQ ID NO: 91 and SEQ ID NO: 102),

10F10.1 (SEQ ID NO: 91 and SEQ ID NO: 102), 10F10.3 (SEQ ID NO: 91 and SEQ ID NO: 102), or 10F10.4 (SEQ ID NO: 91 and SEQ ID NO: 102),

c. IgG1.3 (e.g. 9G4.IgG1.3, etc.), 9G4 (SEQ ID NO: 51, amino acids 20-135, and SEQ ID NO: 100), 9C8 (SEQ ID NO: 55 and SEQ ID NO: 100), 2H2 (SEQ ID NO: 58 and SEQ ID NO: 100), 2E5 (SEQ ID NO: 63 and SEQ ID NO: 100), 24E5 (SEQ ID NO: 67 and SEQ ID NO: 100), 21D9 ((i) SEQ ID NO: 113, or (ii) SEQ ID NO: 71 and SEQ ID NO: 100), 21D9.b (SEQ ID NO: 36), 21D9.c (SEQ ID NO: 38), 21D9.d (SEQ ID NO: 40), 21D9.e (SEQ ID NO: 13), 21A5 (SEQ ID NO: 15), 21A5.a (SEQ ID NO: 17), 10F10 (SEQ ID NO: 19), 10F10.1 (SEQ ID NO: 91 and SEQ ID NO: 100), 10F10.3 (SEQ ID NO: 91 and SEQ ID NO: 100), or 10F10.4 (SEQ ID NO: 91 and SEQ ID NO: 100);

d. IgG1.1f (e.g. 9G4.IgG1.1f, etc.), 9G4 (SEQ ID NO: 51, amino acids 20-135, and SEQ ID NO: 103), 9C8 (SEQ ID NO: 55 and SEQ ID NO: 103), 2H2 (SEQ ID NO: 58 and SEQ ID NO: 103), 2E5 (SEQ ID NO: 63 and SEQ ID NO: 103), 24E5 (SEQ ID NO: 67 and SEQ ID NO: 103), 21D9 (SEQ ID NO: 71 and SEQ ID NO: 103), 21D9.b (SEQ ID NO: 74 and SEQ ID NO: 103), 21D9.c (SEQ ID NO: 75 and SEQ ID NO: 103), 21D9.d (SEQ ID NO: 78 and SEQ ID NO: 103), 21D9.e (SEQ ID NO: 80 and SEQ ID NO: 103), 21A5 (SEQ ID NO: 83 and SEQ ID NO: 103), 21A5.a (SEQ ID NO: 87 and SEQ ID NO: 103), 10F10 (SEQ ID NO: 91 and SEQ ID NO: 103), 10F10.1 (SEQ ID NO: 91 and SEQ ID NO: 103), 10F10.3 (SEQ ID NO: 91 and SEQ ID NO: 103), or 10F10.4 (SEQ ID NO: 91 and SEQ ID NO: 103),

e. IgG1fa.P238K (e.g., 9G4.IgG1fa.P238K, etc.) 9G4 (SEQ ID NO: 51, amino acids 20-135, and SEQ ID NO: 104), 9C8 (SEQ ID NO: 55 and SEQ ID NO: 104), 2H2 (SEQ ID NO: 58 and SEQ ID NO: 104), 2E5 (SEQ ID NO: 63 and SEQ ID NO: 104), 24E5 (SEQ ID NO: 67 and SEQ ID NO: 104), 21D9 (SEQ ID NO: 71 and SEQ ID NO: 104), 21D9.b (SEQ ID NO: 74 and SEQ ID NO: 104), 21D9.c (SEQ ID NO: 75 and SEQ ID NO: 104), 21D9.d (SEQ ID NO: 78 and SEQ ID NO: 104), 21D9.e (SEQ ID NO: 80 and SEQ ID NO: 104), 21A5 (SEQ ID NO: 83 and SEQ ID NO: 104), 21A5.a (SEQ ID NO: 87 and SEQ ID NO: 104), 10F10 (SEQ ID NO: 91 and SEQ ID NO: 104), 10F10.1 (SEQ ID NO: 91 and SEQ ID NO: 104), 10F10.3 (SEQ

ID NO: 91 and SEQ ID NO: 104), or 10F10.4 (SEQ ID NO: 91 and SEQ ID NO: 104), or

f. IgG4 S228P (e.g. 9G4.IgG4 S228P, etc.), 9G4 (SEQ ID NO: 51, amino acids 20-135, and SEQ ID NO: 179), 9C8 (SEQ ID NO: 55 and SEQ ID NO: 179), 2H2 (SEQ ID NO: 58 and SEQ ID NO: 179), 2E5 (SEQ ID NO: 63 and SEQ ID NO: 179), 24E5 (SEQ ID NO: 67 and SEQ ID NO: 179), 21D9 (SEQ ID NO: 71 and SEQ ID NO: 179), 21D9.b (SEQ ID NO: 74 and SEQ ID NO: 179), 21D9.c (SEQ ID NO: 75 and SEQ ID NO: 179), 21D9.d (SEQ ID NO: 78 and SEQ ID NO: 179), 21D9.e (SEQ ID NO: 80 and SEQ ID NO: 179), 21A5 (SEQ ID NO: 83 and SEQ ID NO: 179), 21A5.a (SEQ ID NO: 87 and SEQ ID NO: 179), 10F10 (SEQ ID NO: 91 and SEQ ID NO: 179), 10F10.1 (SEQ ID NO: 91 and SEQ ID NO: 179), 10F10.3 (SEQ ID NO: 91 and SEQ ID NO: 179), or 10F10.4 (SEQ ID NO: 91 and SEQ ID NO: 179).

25. The isolated antibody of claim 23, wherein the HC of the antibody lacks a C-terminal lysine residue.

26. The isolated antibody of claim 23, wherein the HC of the antibody comprises the heavy chain constant region amino acid sequence of any one of SEQ ID Nos: 98, 100, 102, 103, 104, or 179.

27. The isolated antibody of any one of claims 1-26, which comprises the LC of anti-ILT4 antibody 9G4, 9C8, 2H2, 2E5, 24E5, 21D9, 21D9.b, 21D9.c, 21D9.d, 21D9.e, 21A5, 21A5.a, 10F10, 10F10.1, 10F10.3, or 10F10.4.

28. The isolated antibody of claim 27, wherein the light chain constant region is a human Kappa constant region.

29. The isolated antibody of claim 27, wherein the LC comprises the sequence of: 9G4 (SEQ ID NO: 1), 9C8 (SEQ ID NO: 3), 2H2 (SEQ ID NO: 5), 2E5 (SEQ ID NO: 7), 24E5 (SEQ ID NO: 9), 21D9 (SEQ ID NO: 11), 21D9.b, 21D9.c, 21D9.d, 21D9.e, 21A5 (SEQ ID NO: 14), 21A5.a (SEQ ID NO: 16), 10F10 (SEQ ID NO: 18), 10F10.1 (SEQ ID NO: 20), 10F10.3 (SEQ ID NO: 21), or 10F10.4 (SEQ ID NO: 116).

30. The isolated antibody of any one of claims 1-29, which comprises HC and LC of anti-ILT4 antibody 9G4, 9C8, 2H2, 2E5, 24E5, 21D9, 21D9.b, 21D9.c, 21D9.d, 21D9.e, 21A5, 21A5.a, 10F10, 10F10.1, 10F10.3, or 10F10.4, wherein the constant region of the HC is IgG1 (e.g. 9G4.IgG1, etc.), IgG1.3 (e.g. 9G4.IgG1.3, etc.),

~~IgG1.1f (e.g. 9G4.IgG1.1f, etc.), IgG4 (e.g., 9G4.IgG4, etc.), or IgG4 S228P (EU numbering) (e.g., 9G4.IgG4_S228P).~~

~~31. The isolated antibody of claim 30, which comprises:~~

~~a. a heavy chain (HC) comprising the amino acid sequence of the heavy chain of 9G4 ((i) SEQ ID NO: 2, or (ii) SEQ ID NO: 51, amino acids 20-135, and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain (LC) comprising the light chain amino acid sequence of 9G4 (SEQ ID NO: 1);~~

~~b. a heavy chain comprising the amino acid sequence of the heavy chain of 9C8 ((i) SEQ ID NO: 4 or (ii) SEQ ID NOs: 55 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 9C8 (SEQ ID NO: 3);~~

~~c. a heavy chain comprising the amino acid sequence of the heavy chain of 2H2 ((i) SEQ ID NO: 6 or (ii) SEQ ID NOs: 58 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 2H2 (SEQ ID NO: 5);~~

~~d. a heavy chain comprising the amino acid sequence of the heavy chain of 2E5 ((i) SEQ ID NO: 8 or (ii) SEQ ID NOs: 63 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 2E5 (SEQ ID NO: 7);~~

~~e. a heavy chain comprising the amino acid sequence of the heavy chain of 24E5 ((i) SEQ ID NO: 10 or (ii) SEQ ID NOs: 67 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 24E5 (SEQ ID NO: 9);~~

~~f. a heavy chain comprising the amino acid sequence of the heavy chain of 21D9 ((i) SEQ ID NO: 12 or 113, or (ii) SEQ ID NOs: 71 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 21D9 (SEQ ID NO: 11);~~

~~g. a heavy chain comprising the amino acid sequence of the heavy chain of 21D9.b (SEQ ID NOs: 74 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 21D9.b (SEQ ID NO: 11);~~

h. a heavy chain comprising the amino acid sequence of the heavy chain of 21D9.c (SEQ ID NOs: 75 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 21D9.c (SEQ ID NO: 11);

i. a heavy chain comprising the amino acid sequence of the heavy chain of 21D9.d (SEQ ID NOs: 78 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 21D9.d (SEQ ID NO: 11);

j. a heavy chain comprising the amino acid sequence of the heavy chain of 21D9.e ((i) SEQ ID NO: 13, 176, 177, or 178; or (ii) SEQ ID NOs: 80 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 21D9.e (SEQ ID NO: 11);

k. a heavy chain comprising the amino acid sequence of the heavy chain of 21A5 ((i) SEQ ID NO: 15 or (ii) SEQ ID NOs: 83 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 21A5 (SEQ ID NO: 14);

l. a heavy chain comprising the amino acid sequence of the heavy chain of 21A5.a (i) SEQ ID NO: 17 or (ii) SEQ ID NOs: 87 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 21A5.a (SEQ ID NO: 16);

m. a heavy chain comprising the amino acid sequence of the heavy chain of 10F10 ((i) SEQ ID NO: 19 or (ii) SEQ ID NOs: 91 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 10F10 (SEQ ID NO: 18);

n. a heavy chain comprising the amino acid sequence of the heavy chain of 10F10.1 (i) SEQ ID NO: 19 or (ii) SEQ ID NOs: 91 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 10F10.1 (SEQ ID NO: 20);

o. a heavy chain comprising the amino acid sequence of the heavy chain of 10F10.3 ((i) SEQ ID NO: 19 or (ii) SEQ ID NOs: 91 and one of SEQ ID NO: 98, 100,

~~102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 10F10.3 (SEQ ID NO: 21); or~~

~~p. a heavy chain comprising the amino acid sequence of the heavy chain of 10F10.4 ((i) SEQ ID NO: 19 or (ii) SEQ ID NOs: 91 and one of SEQ ID NO: 98, 100, 102, 103, 104, or 179) and a light chain comprising the light chain amino acid sequence of 10F10.4 (SEQ ID NO: 116).~~

~~32. An isolated antibody that binds specifically to human ILT4, comprising a heavy chain comprising the amino acid sequence of SEQ ID NO: 13 and a light chain comprising the light chain amino acid sequence of SEQ ID NO: 11.~~

~~33. An isolated antibody that binds specifically to human ILT4, comprising a heavy chain comprising the amino acid sequence of SEQ ID NO: 176 and a light chain comprising the light chain amino acid sequence of SEQ ID NO: 11.~~

~~34. An isolated antibody that binds specifically to human ILT4, comprising a heavy chain comprising the amino acid sequence of SEQ ID NO: 177 and a light chain comprising the light chain amino acid sequence of SEQ ID NO: 11.~~

~~35. An isolated antibody that binds specifically to human ILT4, comprising a heavy chain comprising the amino acid sequence of SEQ ID NO: 178 and a light chain comprising the light chain amino acid sequence of SEQ ID NO: 11.~~

~~36. The isolated antibody of any one of claims 32-35, wherein the antibody has one or more of the properties of the antibodies of claim 1.~~

~~37. The isolated antibody of any one of claims 1-36, which is a full length antibody and the heavy chain of the antibody comprises or does not comprise a C-terminal lysine residue.~~

~~38. The isolated antibody of any one of claims 1-14, which is an antibody fragment.~~

~~39. The isolated antibody of any one of claims 1-38, which is a multimeric (e.g., dimeric or trimeric) antibody.~~

~~40. The isolated antibody of any one of claims 1-39, which is linked (e.g., covalently) to another molecule.~~

~~41. The isolated antibody of claim 40, wherein the other molecule is a label.~~

~~42. The isolated antibody of claim 40, wherein the other molecule is a peptide.~~

43. The isolated antibody of claim 40, which is an antibody drug conjugate (ADC).

44. An isolated nucleic acid encoding an antibody of any one of claims 1-43.

45. An isolated nucleic acid encoding the heavy chain and/or the light chain of an antibody of any one of claims 1-43.

46. A set of at least two isolated nucleic acids encoding the heavy chain and the light chain of an antibody of any one of claims 1-43.

47. A composition comprising a nucleic acid encoding the heavy chain of an antibody of any one of claims 1-43 and a nucleic acid encoding the light chain of the antibody of any one of claims 1-43.

48. A cell comprising the isolated nucleic acid of any one of claims 44-46 or the composition of claim 47, wherein, e.g., the nucleic acid comprises a nucleic acid set forth in the Sequence Table

49. A method of preparing an antibody, comprising culturing the cell of claim 48 in conditions under which the antibody is expressed.

50. A composition comprising an isolated antibody, nucleic acid, composition or cell of any one of claims 1-49 and a pharmaceutically acceptable carrier.

51. The composition of claim 50, comprising a second therapeutic agent.

52. The composition of claim 51, wherein the second therapeutic agent is an immunostimulatory agent.

53. The composition of claim 52, wherein the immunostimulating agent is an antagonist of an immunosuppressive molecule, e.g., the PD-1/PD-L1, a CTLA-4 and LAG-3, or an agonist of an immunostimulating molecule, e.g., GITR and OX40.

54. A method of treating a subject having cancer, comprising administering to the subject a therapeutically effective amount of a composition of any one of claims 50-53 or isolated antibody of any one of claims 1-43 that stimulates an immune response and/or is an ILT-4 antagonist.

55. The method of claim 54, wherein the method further comprises administering a second therapy.

56. The method of claim 55, wherein the second therapy is radiotherapy, surgery or administration of a second agent.

57. The method of claim 55, wherein the second therapy is a second agent and the second agent is an immunostimulatory agent.

58. The method of claim 57, wherein the immunostimulatory agent is an antagonist of an immunosuppressive molecule, e.g., the PD-1/PD-L1, an CTLA-4 and LAG-3, or an agonist of an immunostimulating molecule, e.g., GITR and OX40.

59. A method of treating an infectious disease (e.g., viral disease) in a subject, comprising administering to the subject a therapeutically effective amount of a composition of any one of claims 50-53 or isolated antibody of any one of claims 1-43 that stimulates an immune response and/or is an ILT4 antagonist.

60. A method of detecting ILT4 in a sample, comprising contacting the sample with an ILT4 antibody of any one of claims 1-43.

61. The isolated antibody of any one of claims 1-43, having the following characteristics:

a. specific binding to hILT4 (e.g. comprising the amino acid sequence of SEQ ID NO: 108, 109, 111, 112, or 119), e.g., with a K_D of 10^{-8} M or less, or of 10^{-9} M or less;

b. stimulates differentiation or activation of monocytes into macrophages, e.g., stimulates differentiation of monocytes into pro-inflammatory macrophages, e.g., as shown in an assay described in the Examples;

c. has a binding profile as shown in Fig 27; and

d. binds to the Ig-like domains 1, 2 or 1 and 2 of hILT4, such as comprising the following regions of hILT4: (i) ^{70}ITRIRPEL^{77} (SEQ ID NO: 120) and/or ^{78}VKNGQFHIPSITWEHTGRYGCQY^{100} (SEQ ID NO: 121); (ii) ^{70}ITRIRPELVKNGQFHIPSITWEHTGRYGCQY^{100} (SEQ ID NO: 122); or (iii) ^{154}ILCKEGEEEHPQCLNSQPHARGSSRAIF^{181} (SEQ ID NO: 123) and/or ^{425}SSPPPTGPIS^{434} (SEQ ID NO: 124), and does not bind significantly to other regions of the extracellular domain of ILT4, such as regions or residues that located N-terminal to amino acid I70, wherein the amino acid numbering of hILT4 is that of immature hILT4 (i.e., ILT4 comprising its native signal sequence).

62. The isolated antibody of any one of claims 1-43, having the following characteristics:

a. specific binding to hILT4 (e.g. comprising the amino acid sequence of SEQ ID NO: 108, 109, 111, 112, or 119), e.g., with a K_D of 10^{-8} M or less, or of 10^{-9} M or less;

b. lack of specific binding to hILT2, hILT3, and/or hILT5;

c. lack of specific binding to one or more members of the LILRA and/or LILRB families;

d. stimulates T cell activation, e.g., in a mixed lymphocyte reaction (MLR) assay, as measured by increased T cell proliferation or IFN-gamma secretion, e.g., as shown in an assay described in the Examples;

e. stimulates differentiation or activation of monocytes into macrophages, e.g., stimulates differentiation of monocytes into pro-inflammatory macrophages, e.g., as shown in an assay described in the Examples;

f. inhibits binding of hILT4 to HLA-A and HLA-B;

g. has a binding profile as shown in Fig 27;

h. binds to the Ig-like domains 1, 2 or 1 and 2 of hILT4, such as comprising the following regions of hILT4: (i) ^{70}ITRIRPEL^{77} (SEQ ID NO: 120) and/or ^{78}VKNGQFHIPSITWEHTGRYGCQY^{100} (SEQ ID NO: 121); (ii) ^{70}ITRIRPELVKNGQFHIPSITWEHTGRYGCQY^{100} (SEQ ID NO: 122), and does not bind significantly to other regions of the extracellular domain of ILT4, such as regions or residues that located N-terminal to amino acid I70; wherein the amino acid numbering of hILT4 is that of immature hILT4 (i.e., ILT4 with its signal sequence).

i. promotes pro-inflammatory polarization of macrophages towards M1 macrophages;

j. does not induce (or trigger) basophil activation; and

k. comprises less than 5% of high and low molecular weight species after 3 months incubation at 25°C and/or less than 10% of high and low molecular weight species after 3 months incubation at 40°C.

63. The isolated antibody of any one of claims 1-43, having the following characteristics:

a. promotes expression of CD83 and CD86 on human monocyte derived immature dendritic cells (Mo-iDC), e.g., as shown in an assay described in the Examples;

~~b. enhances IFN-γ secretion upon antigen stimulation in a cytomegalovirus (CMV) lysate assay, e.g., as shown in an assay described in the Examples;~~

~~c. enhances IFN-γ and TNF-α secretion by CD4+ and CD8+ T cells in an allo-mixed lymphocyte reaction (MLR) assay upon CD3 stimulation, e.g., as shown in an assay described in the Examples;~~

~~d. inhibits binding of HLA-A and/or HLA-B to ILT4;~~

~~e. binds to Ig-like domains 1, 2 or 1 and 2 of hILT4, such as a region comprising (i) ^{70}ITRIRPEL^{77} (SEQ ID NO: 120) and/or ^{78}VKNGQFHIPSITWEHTGRYGCQY^{100} (SEQ ID NO: 121); (ii) ^{70}ITRIRPELVKNGQFHIPSITWEHTGRYGCQY^{100} (SEQ ID NO: 122); or (iii) ^{154}ILCKEGEEEHPQCLNSQPHARGSSRAIF^{181} (SEQ ID NO: 123) and/or ^{425}SSPPPTGPIS^{434} (SEQ ID NO: 124), as determined by hydrogen deuterium exchange (HDX), e.g., as shown in an HDX assay described in the Examples;~~

~~f. interacts with one or more (or all of) amino acid residues Lys43, Ile49, Thr50 and Arg51 of mature hILT4 or interacts with one or more (or all of) amino acid residues Gly117, Val119, Try120, Leu134, Lys136, Gln149, Pro150, Ile159, Ser161, Val162 ,Gly163, Pro164, Pro167, His173, Try178, Pro183 and Tyr184 of mature hILT4 or interacts with one or more (or all of) amino acid residues Glu42, Lys43, Gly76, Cys77, Leu88, Pro91, Pro183 and Tyr184 of mature hILT4, as determined by carbene foot-printing, e.g., as described in the Examples;~~

~~g. competes for binding to hILT4 with an antibody described herein; and~~

~~h. binds specifically to a cyno ILT4 comprising SEQ ID NO: 118, e.g., as shown in a binding assay described in the Examples.~~

2. The isolated antibody of claim 1, wherein:

a. the VH comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 71 and the VL comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 70;

b. the VH comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 74 and the VL comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 70;

c. the VH comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 75 and the VL comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 70;

d. the VH comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 78 and the VL comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 70; or

e. the VH comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 80 and the VL comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 70.

3. The isolated antibody of claim 1, wherein:

a. the VH comprises an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO: 71 and the VL comprises an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO: 70;

b. the VH comprises an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO: 74 and the VL comprises an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO: 70;

c. the VH comprises an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO: 75 and the VL comprises an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO: 70;

d. the VH comprises an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO: 78 and the VL comprises an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO: 70; or

e. the VH comprises an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO: 80 and the VL comprises an amino acid

sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO: 70.

4. The isolated antibody of claim 1, wherein:

a. the VH comprises the amino acid sequence of SEQ ID NO: 71;

b. the VH comprises the amino acid sequence of SEQ ID NO: 74;

c. the VH comprises the amino acid sequence of SEQ ID NO: 75;

d. the VH comprises the amino acid sequence of SEQ ID NO: 78; or

e. the VH comprises the amino acid sequence of SEQ ID NO: 80.

5. The isolated antibody of claim 4, comprising a heavy chain constant region comprising the amino acid sequence of any one of SEQ ID Nos: 98, 100, 102, 103, 104 or 179.

6. The isolated antibody of claim 5, wherein the heavy chain constant region comprises the amino acid sequence of any one of SEQ ID Nos: 100, 102, 103, 104 or 179 and further comprises a C-terminal lysine residue.

7. The isolated antibody of claim 5, wherein the heavy chain constant region comprises the amino acid sequence of SEQ ID NO: 100.

8. The isolated antibody of claim 7, wherein the heavy chain constant region further comprises a C-terminal lysine residue.

9. The isolated antibody of claim 1, wherein the VL comprises the amino acid sequence of SEQ ID NO: 70.

10. The isolated antibody of claim 1, wherein:

a. the VH comprises the amino acid sequence of SEQ ID NO: 71 and the VL comprises the amino acid sequence of SEQ ID NO: 70;

b. the VH comprises the amino acid sequence of SEQ ID NO: 74 and the VL comprises the amino acid sequence of SEQ ID NO: 70;

c. the VH comprises the amino acid sequence of SEQ ID NO: 75 and the VL comprises the amino acid sequence of SEQ ID NO: 70;

d. the VH comprises the amino acid sequence of SEQ ID NO: 78 and the VL comprises the amino acid sequence of SEQ ID NO: 70; or

e. the VH comprises the amino acid sequence of SEQ ID NO: 80 and the VL comprises the amino acid sequence of SEQ ID NO: 70.

11. The isolated antibody of claim 10, comprising a heavy chain constant region comprising the amino acid sequence of any one of SEQ ID Nos: 98, 100, 102, 103, 104 or 179.

12. The isolated antibody of claim 11, wherein the heavy chain constant region comprises the amino acid sequence of any one of SEQ ID Nos: 100, 102, 103, 104 or 179 and further comprises a C-terminal lysine residue.

13. The isolated antibody of claim 11, wherein the heavy chain constant region comprises the amino acid sequence of SEQ ID NO: 100.

14. The isolated antibody of claim 13, wherein the heavy chain constant region further comprises a C-terminal lysine residue.

15. The isolated antibody of claim 1, which is an IgG antibody.

16. The isolated antibody of claim 15, which is an IgG1, IgG2 or IgG4 antibody.

17. The isolated antibody of claim 16, wherein the antibody is a human IgG4 antibody comprising an S228P substitution (EU numbering).

18. The isolated antibody of claim 1, wherein the heavy chain lacks a C-terminal lysine residue.

19. The isolated antibody of claim 1, which is a full length antibody, and wherein the heavy chain comprises or does not comprise a C-terminal lysine residue.

20. The isolated antibody of claim 1, wherein the heavy chain comprises the amino acid sequence of SEQ ID NO: 13.

21. The isolated antibody of claim 20, wherein the heavy chain further comprises a C-terminal lysine residue.

22. The isolated antibody of claim 1, wherein the light chain comprises the amino acid sequence of SEQ ID NO: 11.

23. The isolated antibody of claim 1, wherein the heavy chain comprises the amino acid sequence of SEQ ID NO: 12, SEQ ID NO: 13, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 40, SEQ ID NO: 176, SEQ ID NO: 177, or SEQ ID NO: 178.

24. The isolated antibody of claim 1, wherein: (a) the heavy chain comprises the amino acid sequence of SEQ ID NO: 12 and the light chain comprises the amino acid sequence of SEQ ID NO: 11, (b) the heavy chain comprises the amino acid sequence of SEQ ID NO: 13 and the light chain comprises the amino acid sequence of SEQ ID NO:

11, (c) the heavy chain comprises the amino acid sequence of SEQ ID NO: 36 and the light chain comprises the amino acid sequence of SEQ ID NO: 11, (d) the heavy chain comprises the amino acid sequence of SEQ ID NO: 38 and the light chain comprises the amino acid sequence of SEQ ID NO: 11, (e) the heavy chain comprises the amino acid sequence of SEQ ID NO: 40 and the light chain comprises the amino acid sequence of SEQ ID NO: 11, (f) the heavy chain comprises the amino acid sequence of SEQ ID NO: 176 and the light chain comprises the amino acid sequence of SEQ ID NO: 11, (g) the heavy chain comprises the amino acid sequence of SEQ ID NO: 177 and the light chain comprises the amino acid sequence of SEQ ID NO: 11, or (h) the heavy chain comprises the amino acid sequence of SEQ ID NO: 178 and the light chain comprises the amino acid sequence of SEQ ID NO: 11.

25. The isolated antibody of claim 1, wherein the VH comprises the amino acid sequence of SEQ ID NO: 80.

26. The isolated antibody of claim 25, comprising a heavy chain constant region comprising the amino acid sequence of any one of SEQ ID Nos: 98, 100, 102, 103, 104 or 179.

27. The isolated antibody of claim 26, wherein the heavy chain constant region comprises the amino acid sequence of any one of SEQ ID Nos: 100, 102, 103, 104 or 179 and further comprises a C-terminal lysine residue.

28. An isolated antibody that specifically binds to hILT4, the antibody comprising a VH comprising the amino acid sequence of SEQ ID NO: 80 and a VL comprising the amino acid sequence of SEQ ID NO: 70.

29. The isolated antibody of claim 28, which is an IgG antibody.

30. The isolated antibody of claim 29, which is an IgG1, IgG2 or IgG4 antibody.

31. The isolated antibody of claim 30, wherein the antibody is a human IgG4 antibody comprising an S228P substitution (EU numbering).

32. The isolated antibody of claim 28, comprising a heavy chain that lacks a C-terminal lysine residue.

33. The isolated antibody of claim 28, which is a full length antibody comprising a heavy chain that comprises or does not comprise a C-terminal lysine residue.

34. The isolated antibody of claim 28, comprising a heavy chain constant region comprising the amino acid sequence of any one of SEQ ID Nos: 98, 100, 102, 103, 104 or 179.

35. The isolated antibody of claim 34, wherein the heavy chain constant region comprises the amino acid sequence of any one of SEQ ID Nos: 100, 102, 103, 104 or 179 and further comprises a C-terminal lysine residue.

36. An isolated antibody that specifically binds to hILT4, the antibody comprising a VH comprising the amino acid sequence of SEQ ID NO: 80, a VL comprising the amino acid sequence of SEQ ID NO: 70, and a heavy chain constant region comprising the amino acid sequence of SEQ ID NO: 100.

37. The isolated antibody of claim 36, wherein the heavy chain constant region further comprises a C-terminal lysine residue.

38. An isolated antibody that specifically binds to hILT4, the antibody comprising a heavy chain comprising the amino acid sequence of SEQ ID NO: 13 and a light chain comprising the amino acid sequence of SEQ ID NO: 11.

39. The isolated antibody of claim 38, wherein the heavy chain further comprises a C-terminal lysine residue.

40. The isolated antibody of claim 38, which comprises a heavy chain consisting of the amino acid sequence of SEQ ID NO: 13 and a light chain consisting of the amino acid sequence of SEQ ID NO: 11.

41. The isolated antibody of claim 38, which comprises a heavy chain consisting of the amino acid sequence of SEQ ID NO: 13 and a C-terminal lysine, and a light chain consisting of the amino acid sequence of SEQ ID NO: 11.