

What is claimed is:

1. A chimeric antigen receptor (CAR) comprising:
 - (A) an extracellular domain comprising an antigen binding domain that specifically binds to HLA-G, wherein the antigen binding domain comprises:
 - (a) (i) a VH comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 25; and (ii) a VL comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 35;
 - (b) (i) a VH comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 9; and (ii) a VL comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 50; or
 - (c) (i) a VH comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 9; and (ii) a VL comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 60;
 - (B) a transmembrane domain; and
 - (C) an intracellular signaling domain.
2. The CAR of claim 1, wherein the antigen binding domain is a single chain variable fragment (scFv).
3. The CAR of claim 2, wherein the antigen binding domain comprises a sequence set forth in one of SEQ ID NOs: 63, 65, and 67.
4. The CAR of any one of claims 1-3, wherein the transmembrane domain is a CD28 transmembrane domain; and wherein the intracellular signaling domain comprises a 4-1BB costimulatory signaling region and a CD3 zeta endodomain.

5. The CAR of claim 4, wherein:
 - the CD28 transmembrane domain comprises the sequence of SEQ ID NO: 72,
 - the 4-1BB costimulatory signaling region comprises the sequence of SEQ ID NO: 73, and
 - the CD3 zeta endodomain comprises the sequence of SEQ ID NO: 74.
6. The CAR of any one of claims 1-5, wherein the intracellular signaling domain further comprises a CD28 costimulatory domain.
7. The CAR of any of claims 1-6, further comprising:
 - (a) a signal peptide;
 - (b) a hinge domain connecting the antigen binding domain to the transmembrane domain;
 - (c) a cleavable linker; and/or
 - (d) a truncated human CD19 domain.
8. The CAR of claim 7, wherein:
 - (a) the signal peptide comprises the sequence of SEQ ID NO: 69;
 - (b) the hinge domain comprises the sequence of SEQ ID NO: 71;
 - (c) the cleavable linker comprises the sequence of SEQ ID NO: 75; and/or
 - (d) the truncated human CD19 comprises the sequence of SEQ ID NO: 76.
9. The CAR of claim 1, wherein the CAR comprises the sequence of SEQ ID NO: 68.
10. A nucleic acid molecule encoding the CAR of any one of claims 1-9.
11. An expression vector comprising the nucleic acid molecule of claim 10.
12. A cell comprising the nucleic acid molecule of claim 10.
13. A cell comprising the expression vector of claim 11 or the CAR of any one of claims 1-9.
14. The cell of claim 13, wherein the cell is a T cell, a B cell, a NK cell, a NKT cell, a

monocyte cell or a dendritic cell.

15. A pharmaceutical composition comprising the cell of any one of claims 12-14, and a pharmaceutically acceptable carrier.
16. Use of a cell according to any one of claims 12-14 or the pharmaceutical composition according to claim 15 in the manufacture of a medicament for the treatment of cancer.
17. The use of claim 16, wherein the cancer is a solid tumor or a hematological cancer.
18. The use of claim 16, wherein the cancer is clear cell renal cell carcinoma, epithelial ovarian carcinoma, melanoma, kidney cancer, bladder cancer, breast cancer, ovarian cancer, uterine cancer, endometrial cancer, cervical cancer, renal cell cancer, colorectal cancer, gastric cancer, esophageal cancer, lung cancer, hepatocellular cancer, cholangiocarcinoma, neuroblastoma, cancer of the tongue, mouth and pharynx, bronchogenic cancer, cancer of the larynx, osteosarcoma, prostate cancer, testicular cancer, gastrointestinal stromal tumor, pancreatic cancer, kidney cancer, colon cancer, glioma, glioblastoma multiforme, medulloblastoma, thyroid cancer, adrenal carcinoma, acute myeloid leukemia, chronic lymphocytic leukemia, non-small cell lung cancer, multiple myeloma, Hodgkin's lymphoma, non-Hodgkin lymphoma, B-cell lymphoma, monocytic lymphoma, marginal zone lymphoma, Burkitt's lymphoma, T cell lymphoma, B cell lymphoma, plasmacytoma, prohemocytic leukemia, acute non-lymphoblastic leukemia, acute lymphoblastic leukemia, erythroleukemia, myeloid leukemia or lymphoid leukemia.
19. The use of claim 16, wherein the pharmaceutical composition is administered to the subject by intravenous, intratumoral, intraperitoneal, intramuscular, intraportal, intrahepatic, subcutaneous or intradermal administration.
20. An anti-HLA-G antibody or an antigen-binding fragment thereof, wherein the antibody or antigen-binding fragment comprises:
 - (a) (i) a VH comprising a sequence that is at least 75%, at least 80%, at least 85%,

at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 25; and
(ii) a VL comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 35;

(b) (i) a VH comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 9; and
(ii) a VL comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 50; or

(c) (i) a VH comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 9; and
(ii) a VL comprising a sequence that is at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 98%, or at least 99% identical to SEQ ID NO: 60.

21. The antibody or antigen-binding fragment of claim 20, wherein the antibody or antigen-binding fragment is conjugated to a toxic agent.

22. The antigen-binding fragment of claim 20 or 21, wherein the antigen-binding fragment is a scFv, a Fv, a Fab, a Fab', or a F(ab')₂.

23. The antibody or antigen-binding fragment of any one of claims 20-22, wherein the antibody is monoclonal.