We claim:

1. An isolated monoclonal antibody, or antigen-binding fragment thereof, that specifically binds to human NKG2A protein, wherein the antibody comprises:

(a) a heavy chain variable domain comprising amino acid sequences of SEQ ID NOs: 10, 11, 12, and a light chain variable domain comprising the amino acid sequences of SEQ ID NOs: 13, 14, and 15; or

(b) a heavy chain variable domain comprising amino acid sequences of SEQ ID NOs: 10, 11, and 12, and a light chain variable domain comprising amino acid sequences of SEQ ID NOs: 154, 14, and 15.

2. An isolated monoclonal antibody, or antigen-binding fragment thereof, that specifically binds to human NKG2A protein, wherein the antibody comprises a heavy chain variable domain comprising amino acid sequences of SEQ ID NOs: 10, 11, 12, and a light chain variable domain comprising the amino acid sequences of SEQ ID NOs: 13, 14, and 15.

3. An isolated monoclonal antibody, or antigen-binding fragment thereof, of claim 2, wherein

(a) the heavy chain variable region comprises an amino acid sequence that is at least 90%, 95%, or 98% identical to the amino acid sequence of SEQ ID NO: 8, and

(b) the light chain variable region comprises an amino acid sequence that is at least 90%, 95%, or 98% identical to the amino acid sequence of SEQ ID NO: 9.

4. An isolated monoclonal antibody, or antigen-binding fragment thereof, that specifically binds to human NKG2A protein, wherein the antibody comprises a heavy chain variable domain comprising amino acid sequences of SEQ ID NOs: 10, 11, and 12, and a light chain variable domain comprising amino acid sequences of SEQ ID NOs: 154, 14, and 15.

5. An isolated monoclonal antibody, or antigen-binding fragment thereof, of claim 4, wherein

(a) the heavy chain variable region comprises an amino acid sequence that is at least 90%, 95%, or 98% identical to the amino acid sequence of SEQ ID NO: 8, and

(b) the light chain variable region comprises an amino acid sequence that is at least 90%, 95%, or 98% identical to the amino acid sequence of SEQ ID NO: 164.

6. An isolated monoclonal antibody, or antigen-binding fragment thereof, that specifically binds to human NKG2A protein, and comprises heavy and light chain variable regions, wherein

(a) the heavy chain variable region comprises an amino acid sequence that is about 100%, or 100% identical to the amino acid sequence of SEQ ID NO: 8, and

(b) the light chain variable region comprises an amino acid sequence that is about 100%, or 100% identical to the amino acid sequence of SEQ ID NO: 9, or SEQ ID NO: 164.

7. The antibody, or antigen-binding fragment thereof, of claim 6, wherein heavy chain variable region comprises the amino acid sequence of SEQ ID NO: 8, and the light chain variable region comprises the amino acid sequence of SEQ ID NO: 9.

8. The antibody, or antigen-binding fragment thereof, of claim 7, wherein

(a) the heavy chain comprises an amino acid sequence that is at least 90%, 95%, or 98% identical to the amino acid sequence of SEQ ID NO: 7, and

(b) the light chain comprises an amino acid sequence that is at least 90%, 95%, or 98% identical to the amino acid sequence of SEQ ID NO: 5.

9. The antibody, or antigen-binding fragment thereof, of claim 6, wherein heavy chain variable region comprises the amino acid sequence of SEQ ID NO: 8, and the light chain variable region comprises the amino acid sequence of SEQ ID NO: 164.

10. The antibody, or antigen-binding fragment thereof, of claim 9, wherein

(a) the heavy chain comprises an amino acid sequence that is at least 90%, 95%, or 98% identical to the amino acid sequence of SEQ ID NO: 7, and

(b) the light chain comprises an amino acid sequence that is at least 90%, 95%, or 98% identical to the amino acid sequence of SEQ ID NO: 19.

11. An isolated monoclonal antibody, or antigen-binding fragment thereof, that specifically binds to human NKG2A protein, wherein the heavy and light chains consist essentially of:

(a) the amino acid sequences of SEQ ID NOs: 7 and 5, respectively; or

(b) the amino acid sequences of SEQ ID NOs: 7 and 19, respectively.

12. An isolated, full-length monoclonal antibody that specifically binds to human NKG2A protein, wherein the heavy chain comprises the amino acid sequence set forth in SEQ ID NO: 7, and the light chain comprises the amino acid sequence set forth in SEQ ID NO: 5.

13. An isolated, full-length monoclonal antibody that binds specifically to human NKG2A protein, wherein

the heavy chain comprises an amino acid sequence that is about 100%, or 100% identical to the amino acid sequence of SEQ ID NO: 7, and

the light chain comprises an amino acid sequence that is about 100%, or 100% identical to the amino acid sequence of SEQ ID NO: 5.

14. The antibody of claim 13, wherein the the amino acid sequence of SEQ ID NO: 7 comprises the amino acid sequence of SEQ ID NOs: 10, 11, 12; and the amino acid sequence of SEQ ID NO: 5 comprises the amino acid sequence of SEQ ID NOs: 13, 14, and 15.

15. An isolated, full-length monoclonal antibody that specifically binds to human NKG2A protein, wherein the heavy chain comprises the amino acid sequence set forth in SEQ ID NO: 7, and the light chain comprise the amino acid sequence set forth in SEQ ID NO: 19.

16. An isolated, full-length monoclonal antibody that specifically binds to human NKG2A protein, wherein

the heavy chain comprises an amino acid sequence that is about 100%, or 100% identical to the amino acid sequence of SEQ ID NO: 7, and

the light chain is an amino acid sequence that is about 100%, or 100% identical to the amino acid sequence of SEQ ID NO: 19.

17. The antibody of claim 16, wherein the the amino acid sequence of SEQ ID NO: 7 comprises the amino acid sequence of SEQ ID NOs: 10, 11, 12; and the amino acid sequence of SEQ ID NO: 19 comprises the amino acid sequence of SEQ ID NOs: 154, 14, and 15.

18. The isolated monoclonal antibody, or antigen-binding fragment thereof, of any one of claims 2, 3, 7, 8 and 12-14 that, when bound to human NKG2A protein, specifically binds to the following amino acid residues as determined by hydrogen-deuterium exchange mass spectrometry (HDX-MS):

(a) LSIDNEEMKF (SEQ ID NO: 156);

(b) PSSWIGVFRNSSHHPW (SEQ ID NO: 157);

(c) LAFKHEIKDSDN (SEQ ID NO: 158); and

(d) QVNRLKSAQQCGSSIIYHC (SEQ ID NO: 159),

wherein the antibody blocks the binding of HLA-E to human NKG2A protein.

19. An isolated monoclonal antibody, or antigen-binding fragment thereof, of any one of claims 2, 3, 7, 8 and 12-14 that, when bound to human NKG2A, specifically binds to the following amino acid residues as determined by HDX-MS and/or fast photochemical oxidation of proteins (FPOP) epitope mapping:

(a) LSIDNEEMKF (SEQ ID NO: 156)

(b) PSSWIGVFRNSSHHPW (SEQ ID NO: 157)

(c) LAFKHEIKDSDN (SEQ ID NO: 158)

(d) L; and

(e) QVNRLKSAQQCGSSIIYHC (SEQ ID NO: 159),

wherein the antibody blocks the binding of HLA-E to human NKG2A protein.

20. The antibody, or antigen-binding fragment thereof, of any one of the preceding claims, wherein the antibody is a full-length antibody.

21. The antibody, or antigen-binding fragment thereof, of any one of the preceding claims, wherein the high-length antibody is an IgG1 antibody.

22. The antibody, or antigen-binding fragment thereof, of any one of claims 1-19, wherein the antibody is an antibody fragment.

23. The antigen-binding fragment of claim 22, wherein the antibody fragment is a Fab, Fab', (Fab')2, Fv, or scFv fragment.

24. The antibody, or antigen-binding fragment thereof, of any one of the preceding claims, wherein the antibody is a human, humanized, or chimeric antibody.

25. An isolated nucleic acid molecule encoding the heavy chain variable region and the light chain variable region of the antibody, or antigen binding fragment thereof, of any one of the preceding claims.26. The isolated nucleic acid of claim 25, wherein the nucleic acid molecule is complementary DNA (cDNA).

27. An expression vector comprising the nucleic acid molecule of claim 25 or 26.

28. A host cell transformed with the expression vector of claim 27.

29. A host cell transformed with

an expression vector comprising an isolated nucleic acid molecule encoding the heavy chain variable region of the antibody, or antigen binding fragment thereof, of any one of claims 1-24; and

an expression vector comprising an isolated nucleic acid molecule encoding the light chain variable region of the antibody, or antigen binding fragment thereof, of any one of claims 1-24.

30. An immunoconjugate comprising the antibody, or antigen-binding fragment thereof, according to any one of claims 1-24, linked to an agent.

31. A method of producing the antibody, or antigen-binding fragment thereof, comprising culturing the host cell of claim 28 or 29, wherein the antibody is produced.

32. The method of claim 31, further comprising recovering the antibody, or antigen-binding fragment thereof, from the host cell.

33. A bispecific molecule comprising the antibody, or antigen-binding fragment thereof, of any one of claims 1-24 linked to a second functional moiety.

34. A composition comprising the antibody, or antigen-binding fragment thereof, of any one of claims 1-24, or the bispecific molecule of claim 31, and a pharmaceutically acceptable carrier.

35. The composition of claim 34, further comprising an additional therapeutic agent.

36. The composition of claim 35, wherein the additional therapeutic agent is an anti-PD-1 antibody, anti-PD-L1 antibody, and/or an anti-CTLA-4 antibody.

37. The antibody, or antigen-binding fragment thereof, of any one of claims 2, 3, 7, 8 and 12-14 for use as a medicament for treating cancer.

38. The antibody, or antigen-binding fragment thereof, of claim 37, wherein the cancer is bladder cancer, breast cancer, uterine/cervical cancer, ovarian cancer, prostate cancer, testicular cancer, esophageal cancer, gastrointestinal cancer, pancreatic cancer, colorectal cancer, kidney cancer, head and neck cancer, lung cancer, stomach cancer, germ cell cancer, bone cancer, liver cancer, thyroid cancer, skin cancer, neoplasm of the central nervous system, lymphoma, leukemia, myeloma, sarcoma, endometrial, cervical, gastric, melanoma, renal, urothelial, glioblastoma multiform, or virus-related cancer.

39. The antibody, or antigen-binding fragment thereof, of claim 38, wherein the cancer is cervical, head and neck squamous cell carcinoma, pancreatic, non-small cell lung cancer-adenocarcinoma type, non-small cell lung cancer-squamous cell type, gastric, melanoma, colorectal, endometrial, ovarian, renal cell carcinoma, urothelial carcinoma, breast, small cell lung, glioblastoma mulitforme, prostate cancer, or non-Hodgkin lymphoma.

40. The antibody, or antigen-binding fragment thereof, of any one of claims 2, 3, 7, 8 and 12-14 for use in enhancing an immune response.

41. Use of the antibody, or antigen-binding fragment thereof, of any one of claims 2, 3, 7, 8 and 12-14 in the manufacture of a medicament for treatment of cancer.

42. The antibody of any one of claims 2, 3, 7, 8 and 12-14, the immunoconjugate comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to an agent, or the bispecific molecule comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to a second functional moiety, for use in the treatment or delaying progression of cancer in a human subject, wherein an effective amount of the antibody, the immunoconjugate, or the bispecific molecule is to be administered to the human subject.

43. The composition comprising the antibody of any one of claims 2, 4, 7 or 10-12, the immunoconjugate comprising the antibody of any one of claims 2, 4, 7 or 10-12 linked to an agent, or the bispecific molecule comprising the antibody of any one of claims 2, 4, 7 or 10-12 linked to a second functional moiety; and an additional therapeutic agent for use in the treatment or delaying progression of cancer in a human subject, wherein an effective amount of the composition is to be administered to the human subject.

44. The composition of claim 43, wherein the additional therapeutic agent is an anti-PD-1 antibody, anti-PD-L1 antibody, and/or an anti-CTLA-4 antibody.

45. The antibody, the immunoconjugate, the bispecific molecule, or the composition for use of any one of claims 42-44 , wherein the cancer is bladder cancer, breast cancer, uterine/cervical cancer, ovarian cancer, prostate cancer, testicular cancer, esophageal cancer, gastrointestinal cancer, pancreatic cancer, colorectal cancer, kidney cancer, head and neck cancer, lung cancer, stomach cancer, germ cell cancer, bone cancer, liver cancer, thyroid cancer, skin cancer, neoplasm of the central nervous system, lymphoma, leukemia, myeloma, sarcoma, endometrial, cervical, gastric, melanoma, renal, urothelial, glioblastoma multiform, or virus-related cancer.

46. The antibody, the immunoconjugate, the bispecific molecule, or the composition for use of claim 45, wherein the cancer is cervical, head and neck squamous cell carcinoma, pancreatic, non-small cell lung cancer-adenocarcinoma type, non-small cell lung cancer-squamous cell type, gastric, melanoma, colorectal, endometrial, ovarian, renal cell carcinoma, urothelial carcinoma, breast, small cell lung, glioblastoma mulitforme, prostate cancer, or non-Hodgkin lymphoma.

47. The antibody, the immunoconjugate, the bispecific molecule, or the composition for use of claim 45 or 46, wherein one or more additional therapeutic agent(s) is to be administered to the human subject.

48. The antibody, the immunoconjugate, the bispecific molecule, or the composition for use of claim 47, wherein the one or more additional therapeutic agent(s) is a chemotherapeutic agent, a radiotherapeutic agent, and/or an immunotherapeutic agent.

49. The antibody, the immunoconjugate, the bispecific molecule, or the composition for use of claim 48, wherein the immunotherapeutic agent is an anti-PD-1 antibody, an anti-PD-L1 antibody, and/or an anti-CTLA-4 antibody.

50. The antibody, the immunoconjugate, the bispecific molecule, or the composition for use of claim 49, wherein the anti-PD-1 antibody is nivolumab, and the anti-CTLA-4 antibody is ipilulimab.

51. The antibody of any one of claims 2, 3, 7, 8 and 12-14, the immunoconjugate comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to an agent, the bispecific molecule comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to a second functional moiety, for use in stimulating an immune response in a human subject, wherein an effective amount of the antibody, the immunoconjugate, or the bispecific molecule is to be administered to the human subject.

52. The composition comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14, the immunoconjugate comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to an agent, or the bispecific molecule comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to a second functional moiety; and an additional therapeutic agent for use in stimulating an immune response in a human subject, wherein an effective amount of the composition is to be administered to the human subject.

53. The composition of claim 52, wherein the additional therapeutic agent is an anti-PD-1 antibody, anti-PD-L1 antibody, and/or an anti-CTLA-4 antibody.

54. The antibody, the immunoconjugate, the bispecific molecule, or the composition for use of any one of claims 51-53, wherein the human subject has a tumor and an anti-tumor immune response is stimulated.

55. The antibody, the immunoconjugate, the bispecific molecule, or the composition for use of any one of claims 51-53, wherein the human subject has a chronic viral infection and an anti-viral immune response is stimulated.

56. Use of the antibody of any one of claims 2, 3, 7, 8 and 12-14, the immunoconjugate comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to an agent, or the bispecific molecule comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to a second functional moiety n the manufacture of a medicament for the treating or delaying progression of cancer in a human subject, wherein an effective amount of the medicament is to be administered to the human subject.

57. Use of the composition comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14, the immunoconjugate comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to an agent, or the bispecific molecule comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to a second functional moiety; and an additional therapeutic agent in the manufacture of a medicament for treating or delaying progression of cancer in a human subject, wherein an effective amount of the medicament is to be administered to the human subject.

58. The use of claim 57, wherein the additional therapeutic agent is an anti-PD-1 antibody, anti-PD-L1 antibody, and/or an anti-CTLA-4 antibody.

59. The use of any one of claims 56-58, wherein the cancer is bladder cancer, breast cancer, uterine/cervical cancer, ovarian cancer, prostate cancer, testicular cancer, esophageal cancer, gastrointestinal cancer, pancreatic cancer, colorectal cancer, kidney cancer, head and neck cancer, lung cancer, stomach cancer, germ cell cancer, bone cancer, liver cancer, thyroid cancer, skin cancer, neoplasm of the central nervous system, lymphoma, leukemia, myeloma, sarcoma, endometrial, cervical, gastric, melanoma, renal, urothelial, glioblastoma multiform, or virus-related cancer.

60. The use of claim 59, wherein the cancer is cervical, head and neck squamous cell carcinoma, pancreatic, non-small cell lung cancer-adenocarcinoma type, non-small cell lung cancer-squamous cell type, gastric, melanoma, colorectal, endometrial, ovarian, renal cell carcinoma, urothelial carcinoma, breast, small cell lung, glioblastoma mulitforme, prostate cancer, or non-Hodgkin lymphoma.

61. The use of claim 59 or 60, wherein one or more additional therapeutic agent(s) is to be administered to the human subject.

62. The use of claim 61, wherein the one or more additional therapeutic agent(s) is a chemotherapeutic agent, a radiotherapeutic agent, and/or an immunotherapeutic agent.

63. The use of claim 62, wherein the immunotherapeutic agent is an anti-PD-1 antibody, an anti-PD-L1 antibody, and/or an anti-CTLA-4 antibody.

64. The use of claim 63, wherein the anti-PD-1 antibody is nivolumab, and the anti-CTLA-4 antibody is ipilulimab.

65. Use of the antibody of any one of claims 2, 3, 7, 8 and 12-14, the immunoconjugate comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to an agent, or the bispecific molecule comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to a second functional moiety, in the manufacture of a medicament for treating tumor by stimulating an anti-tumor immune response in a human subject, wherein an effective amount of the medicament is to be administered to the human subject.

66. Use of the composition comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14, the immunoconjugate comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to an agent, or the bispecific molecule comprising the antibody of any one of claims 2, 3, 7, 8 and 12-14 linked to a second functional moiety; and an additional therapeutic agent in the manufacture of a medicament for treating tumor by stimulating an anti-tumor immune response in a human subject, wherein an effective amount of the medicament is to be administered to the human subject.

67. The use of claim 66, wherein the additional therapeutic agent is an anti-PD-1 antibody, anti-PD-L1 antibody, and/or an anti-CTLA-4 antibody.

68. The use of any one of claims 65-67, wherein the human subject has a chronic viral infection and an anti-viral immune response is stimulated.