Claims

1. An antibody that specifically binds to a peptide consisting of the amino acid sequence of LPSPVDAAF (SEQ ID NO: 84) or binds to the peptide consisting of the amino acid sequence of LPSPVDAAF (SEQ ID NO: 84) bound to an MHC molecule.

2. A kit comprising:
(a) a container comprising a pharmaceutical composition containing the antibody of claim 1 in solution or in lyophilized form;
(b) optionally, a second container containing a diluent or reconstituting solution for the lyophilized formulation;
(c) optionally, the peptide having the amino acid sequence of LPSPVDAAF (SEQ ID NO: 84), and
(d) optionally, instructions for (i) use of the solution or (ii) reconstitution and/or use of the lyophilized formulation.

3. The kit according to claim 2, further comprising one or more of (iii) a buffer, (iv) a diluent, (v) a filter, (vi) a needle, or (v) a syringe.

4. A pharmaceutical composition comprising the antibody of claim 1 and a pharmaceutically acceptable carrier, and optionally, pharmaceutically acceptable excipients and/or stabilizers.

5. The antibody of claim 1, wherein said antibody is a polyclonal antibody, a monoclonal antibody, a bi-specific antibody or a chimeric antibody.

6. The antibody of claim 1, wherein the peptide bound to an MHC molecule is present in a tumor cell.

7. The antibody of claim 6, wherein the tumor cell is at least one selected from the group consisting of lung cancer, kidney cancer, brain cancer, stomach cancer, colon or rectal cancer, liver cancer, prostate cancer, leukemia, breast cancer, Merkel cell carcinoma (MCC), melanoma, ovarian cancer, esophageal cancer, urinary bladder cancer, endometrial cancer, gall bladder cancer, and bile duct cancer, and other tumors that show an overexpression of a protein comprising a peptide having the amino acid sequence of LPSPVDAAF (SEQ ID NO: 84).

8. The antibody of claim 6, wherein the tumor cell is ovarian cancer.

9. The antibody of claim 1, wherein the antibody is labeled with a toxin.

10. The antibody of claim 1, wherein the antibody is labeled with a radionucleotide.

11. The antibody of claim 10, wherein the radionucleotide is ^{111}In, ^{99}Tc, ^{14}C, ^{131}I, ^{3}H, ^{32}P, or ^{35}S.

12. The antibody of claim 1, wherein the affinity value (Kd) of the antibody is less than 1×10 μM.

13. The antibody of claim 1, wherein the MHC is a MHC class I molecule.

14. The antibody of claim 1, wherein the MHC is a MHC class II molecule.

15. The antibody of claim 1, further comprising a binding affinity of below 20 nanomolar.

16. The antibody of claim 1, wherein the antibody is humanized.

17. The composition of claim 4, wherein the pharmaceutically acceptable carrier is saline, Ringer's solution, dextrose solution, and/or solid hydrophobic polymer.

18. The composition of claim 17, wherein the solid hydrophobic polymer is film, liposome, or microparticle.

19. A pharmaceutical composition comprising the antibody of claim 6 and a pharmaceutically acceptable carrier.

20. A pharmaceutical composition comprising the antibody of claim 9 and a pharmaceutically acceptable carrier.

21. A pharmaceutical composition comprising the antibody of claim 10 and a pharmaceutically acceptable carrier.

22. A pharmaceutical composition comprising the antibody of claim 13 and a pharmaceutically acceptable carrier.