CLAIMS

We claim:

1. An antibody drug conjugate comprising an antibody or antigen binding fragment to monomethyl auristatin E (MMAE), wherein the antibody or fragment comprises the heavy chain variable region consisting of the amino acid sequence ranging from 1st Q to the 120th S of SEQ ID NO: 7 and the light chain variable consisting of the amino acid sequence ranging from 1st D to the 113th R SEQ ID NO: 8.

2. The antibody drug conjugate of claim 1, wherein the antibody comprises the heavy chain consisting of the amino acid sequence ranging from 1st Q to the 446th K of SEQ ID NO: 7 and the light chain consisting of the amino acid sequence ranging from 1st D to the 219th C of SEQ ID NO: 8.

3. An antibody drug conjugate comprising an antibody or fragment to conjugated to monomethyl auristatin E (MMAE), wherein the antibody or fragment comprises the heavy chain variable region consisting of the amino acid sequence of the heavy chain variable region of an antibody produced by a Chinese Hamster Ovary (CHO) cell deposited under American Type Culture Collection (ATCC) Accession No. PTA-13102, and the light chain variable region consisting of the amino acid sequence of the light chain variable region of an antibody produced by a Chinese Hamster Ovary (CHO) cell deposited under ATCC Accession No. PTA-13102.

4. The antibody drug conjugate of claim 3, wherein the antibody comprises the heavy chain consisting of the amino acid sequence of the heavy chain of an antibody produced by a Chinese Hamster Ovary (CHO) cell deposited under ATCC. Accession No. PTA-13102, and the light chain consisting of the amino acid sequence of the light chain of an antibody produced by a Chinese Hamster Ovary (CHO) deposited under ATCC. Accession No. PTA-13102.

5. The antibody drug conjugate of any one of claims 1 to 4, wherein the fragment is an Fab, $F(ab')_2$, Fv or scFv fragment.

6. The antibody drug conjugate of any one of claims 1 to 5, wherein the antibody is a fully human antibody.

7. The antibody drug conjugate of any one of claims 1 to 6, which the antibody is recombinantly produced.

8. A pharmaceutical composition that comprises the antibody drug conjugate of any one of claims 1 to 7 in a human unit dose form.

9. The pharmaceutical composition of claim 8, wherein the composition is for treatment of glioblastoma cancer, lung cancer, bladder cancer, or breast cancer.

10. The pharmaceutical composition of claims 8 or 9, wherein the composition is administered in combination with radiation or a chemotherapeutic agent.

11. The pharmaceutical composition of claim 10 comprising the antibody drug conjugate of claim 1 and a chemotherapeutic agent in a human unit dose form.

12. A method of treating bladder cancer in a subject, comprising administering to said subject an antibody drug conjugate of any one of claims 1 to 7.

13. A method for treating bladder cancer in a subject, comprising administering to said subject an effective amount of a combination of an antibody drug conjugate of any one of claims 1 to 7 and radiation.

14. A method for treating bladder cancer in a subject, comprising administering to said subject an effective amount of a combination of an antibody drug conjugate of any one of claims 1 to 7 and a chemotherapeutic agent.

15. A 158P1D7 antibody or antigen binding fragment thereof, wherein the antibody or antigen binding fragment thereof comprises a heavy chain variable region comprising complementarity determining regions (CDRs) consisting of the amino acid sequences of the CDRs

in the heavy chain variable region sequence set forth in SEQ ID NO:7 and a light chain variable region comprising CDRs consisting of the amino acid sequences of the CDRs in the light chain variable region sequence set forth in SEQ ID NO:8.

16. The antibody or antigen binding fragment of claim 15, wherein the antibody or antigen binding fragment thereof comprises a heavy chain variable region consisting of the amino acid sequence ranging from the 1st residue (Q) to the 120th residue (S) of SEQ ID NO:7 and a light chain variable region consisting of the amino acid sequence ranging from the 1st residue (D) to the 113th residue (R) of SEQ ID NO:8.

17. The antibody or antigen binding fragment of claim 15 or 16, wherein the fragment is an Fab, $F(ab')_2$, Fv or scFv fragment.

18. The antibody or antigen binding fragment of any one of claims 15 to 17 further comprising a human IgG constant region and a human light chain constant region.

19. The antibody or antigen binding fragment of claim 18, wherein the IgG constant region is IgG2 and the light chain constant region is kappa.

20. The antibody or antigen binding fragment of any one of claims 15 to 17, wherein the heavy chain sequence is set forth in SEQ ID NO:7 and the light chain sequence is set forth in SEQ ID NO:8.

21. The antibody or antigen binding fragment of any one of claims 15 to 20, wherein the antibody is a fully human antibody.

22. The antibody or antigen binding fragment of any one of claims 15 to 21, wherein the antibody is recombinantly produced.

23. An antibody or antibody fragment thereof comprising a heavy chain variable region consisting of the amino acid sequence of the heavy chain variable region of an antibody produced by a hybridoma deposited under American Type Culture Collection (ATCC) Accession No. PTA-

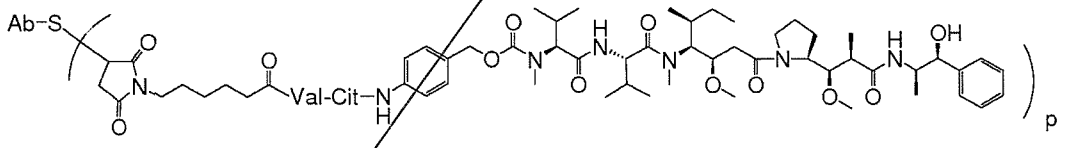
13102, and a light chain variable region consisting of the amino acid sequence of the light chain variable region of an antibody produced by a hybridoma deposited under ATCC Accession No. PTA-13102.

24. The antibody or antibody fragment of claim 23, wherein the antibody comprises a heavy chain consisting of the amino acid sequence of the heavy chain of an antibody produced by a hybridoma deposited under ATCC. Accession No. PTA-13102, and a light chain consisting of the amino acid sequence of the light chain of an antibody produced by a hybridoma deposited under ATCC. Accession No. PTA-13102.

25. An antibody drug conjugate comprising the antibody or antibody binding fragment of any one of the preceding claims conjugated to a cytotoxic agent.

26. The antibody drug conjugate of claim 25, wherein the cytotoxic agent is monomethyl auristatin E (MMAE).

27. The antibody drug conjugate of claim 26, wherein the antibody drug conjugate has the following structure:



wherein Ab-s- represents a 158P1D7 antibody and p ranges from 1 to about 10.

28. A pharmaceutical composition that comprises the antibody drug conjugate of any one of claims 25 to 27 in a human unit dose form.

29. The pharmaceutical composition of claim 28, wherein the composition is for bladder cancer treatment.

30. The pharmaceutical composition of claim 28 or 29, wherein the composition is administered in combination with radiation or a chemotherapeutic agent.

31. The pharmaceutical composition of any one of claims 28 to 30, comprising the antibody drug conjugate of any one of claims 25 to 27 and a chemotherapeutic agent in a human unit dose form.

32. A method of treating bladder cancer in a subject, comprising administering to said subject an antibody drug conjugate of any one of claims 25 to 27.

33. A method for treating bladder cancer in a subject, comprising administering to said subject an effective amount of a combination of an antibody drug conjugate of claim any one of claims 25 to 27 and radiation.

34. A method for treating bladder cancer in a subject, comprising administering to said subject an effective amount of a combination of an antibody drug conjugate of any one of claims 25 to 27 and a chemotherapeutic agent.

CLAIMS

1. An invention not claimed in any divisional application.