

In another aspect, the present disclosure refers to a process for producing an antibody comprising cultivating a mammalian cell capable of expressing the antibody and recovering the antibody; wherein the antibody comprises HCDR1 having the amino acid sequence of SEQ ID: 2, HCDR2 having the amino acid sequence of SEQ ID NO: 3, HCDR3 having the amino acid sequence of SEQ ID NO: 4, LCDR1 having the amino acid sequence of SEQ ID NO: 5, LCDR2 having the amino acid sequence of SEQ ID NO: 6, and LCDR3 having the amino acid sequence of SEQ ID NO: 7.

In a further aspect, the present disclosure refers to a process for producing an antibody comprising cultivating a mammalian cell capable of expressing the antibody and recovering the antibody; wherein the antibody comprises a heavy chain having the amino acid sequence of SEQ ID NO: 10 and a light chain having the amino acid sequence of SEQ ID NO: 11 or the amino acid sequence of SEQ ID NO: 13.

In a further aspect, the present disclosure refers to a DNA molecule comprising a polynucleotide having the sequence of SEQ ID NO:14 and one of SEQ ID NO:15, SEQ ID NO:16, or SEQ ID NO:17.

In a further aspect, the present disclosure refers to a mammalian cell comprising a DNA molecule disclosed herein.

In another aspect, the present disclosure refers to a pharmaceutical composition, comprising an antibody disclosed herein and a pharmaceutically acceptable carrier, diluent, or excipient.

In a further aspect, the present disclosure refers to an antibody disclosed herein, for use in therapy.

In another aspect, the present disclosure refers to an antibody disclosed herein, for use in the treatment of cancer.

In a further aspect, the present disclosure refers to a use of an antibody disclosed herein for the manufacture of a medicament for the treatment of cancer.

WE CLAIM:

1. An anti-human CD137 (SEQ ID NO:1) antibody comprising HCDR1 having the amino acid sequence of SEQ ID NO: 2, HCDR2 having the amino acid sequence of SEQ ID NO: 3, HCDR3 having the amino acid sequence of SEQ ID NO: 4, LCDR1 having the amino acid sequence of SEQ ID NO: 5, LCDR2 having the amino acid sequence of SEQ ID NO:6, and LCDR3 having the amino acid sequence of SEQ ID NO: 7.
2. The antibody of claim 1, comprising a heavy chain variable region having the amino acid sequence of SEQ ID NO: 8 and a light chain variable region having the amino acid sequence of SEQ ID NO: 9.
3. The antibody of claim 1, comprising a heavy chain variable region having the amino acid sequence of SEQ ID NO: 8 and a light chain variable region having the amino acid sequence of SEQ ID NO: 12.
4. The antibody of claim 1, comprising a heavy chain having the amino acid sequence of SEQ ID NO: 10 and a light chain having the amino acid sequence of SEQ ID NO: 11.
5. The antibody of claim 1, comprising a heavy chain having the amino acid sequence of SEQ ID NO: 10 and a light chain having the amino acid sequence of SEQ ID NO: 13.
6. A mammalian cell capable of expressing an antibody comprising HCDR1 having the amino acid sequence of SEQ ID NO: 2, HCDR2 having the amino acid sequence of SEQ ID NO: 3, HCDR3 having the amino acid sequence of SEQ ID NO: 4, LCDR1 having the amino acid sequence of SEQ ID NO: 5, LCDR2 having the amino acid sequence of SEQ ID NO: 6, and LCDR3 having the amino acid sequence of SEQ ID NO:7.
7. A mammalian cell capable of expressing an antibody comprising a heavy chain having the amino acid sequence of SEQ ID NO: 10 and a light chain having the amino acid sequence of SEQ ID NO: 11 or the amino acid sequence of SEQ ID NO: 13.
8. A process for producing an antibody comprising cultivating a mammalian cell capable of expressing the antibody and recovering the antibody; wherein the antibody comprises HCDR1 having the amino acid sequence of SEQ ID NO: 2, HCDR2 having the amino acid sequence of SEQ ID NO: 3, HCDR3 having the amino acid sequence of SEQ ID NO: 4, LCDR1 having the amino acid sequence of SEQ ID NO: 5, LCDR2

having the amino acid sequence of SEQ ID NO: 6, and LCDR3 having the amino acid sequence of SEQ ID NO: 7.

9. A process for producing an antibody comprising cultivating a mammalian cell capable of expressing the antibody and recovering the antibody; wherein the antibody
5 comprises a heavy chain having the amino acid sequence of SEQ ID NO: 10 and a light chain having the amino acid sequence of SEQ ID NO: 11 or the amino acid sequence of SEQ ID NO: 13.
10. A DNA molecule comprising a polynucleotide having the sequence of SEQ ID NO:14 and one of SEQ ID NO:15, SEQ ID NO:16, or SEQ ID NO:17.
- 10 11. A mammalian cell comprising the DNA molecule of claim 10.
12. A pharmaceutical composition, comprising the antibody of any one of claims 1-5 and a pharmaceutically acceptable carrier, diluent, or excipient.
13. The antibody of any one of claims 1-5, for use in therapy.
14. The antibody of any one of claims 1-5, for use in the treatment of cancer.
- 15 15. The antibody for use of claim 14, wherein the cancer is bladder cancer, breast cancer, biliary tract cancer, colon cancer, endometrial cancer, esophageal cancer, gastric cancer, head and neck cancer, non-small cell lung cancer, prostate cancer, rectal cancer, or thyroid cancer.
16. The antibody for use of claim 14, wherein the cancer is cholangiocarcinoma, head and
20 neck squamous cell carcinoma, lung adenocarcinoma, lung squamous cell carcinoma, clear cell renal carcinoma, or head and neck squamous cell carcinoma.
17. The antibody for use of claim 14, wherein the cancer is bladder cancer, head and neck squamous cell carcinoma, or renal cell carcinoma.
18. The antibody for use of any one of claims 14-17, wherein the antibody is to be
25 administered in simultaneous, separate, or sequential combination with ionizing radiation.
19. The antibody for use of any one of claims 14-18, wherein the antibody is to be administered in simultaneous, separate, or sequential combination with one or more chemotherapeutic agents.
- 30 20. Use of the antibody of any one of claims 1-5 for the manufacture of a medicament for the treatment of cancer.

21. The use of claim 20, wherein the cancer is bladder cancer, breast cancer, biliary tract cancer, colon cancer, endometrial cancer, esophageal cancer, gastric cancer, head and neck cancer, non-small cell lung cancer, prostate cancer, rectal cancer, or thyroid cancer.
- 5 22. The use of claim 20, wherein the cancer is cholangiocarcinoma, head and neck squamous cell carcinoma, lung adenocarcinoma, lung squamous cell carcinoma, clear cell renal carcinoma, or head and neck squamous cell carcinoma.
23. The use of claim 20, wherein the cancer is bladder cancer, head and neck squamous cell carcinoma, or renal cell carcinoma.
- 10 24. The use of any one of claims 20-23, wherein the antibody is to be administered in simultaneous, separate, or sequential combination with ionizing radiation.
25. The use of any one of claims 20-24, wherein the antibody is to be administered in simultaneous, separate, or sequential combination with one or more chemotherapeutic agents.