CLAIMS

1. An isolated human monoclonal antibody or an antigen-binding portion thereof, wherein the antibody:

(a) binds to human O8E with a K_D of 1 x 10^{-7} M or less; and

(b) binds to a breast cell carcinoma tumor cell line.

2. The antibody of claim 1, which is full-length antibody of an IgG1 or IgG4 isotype.

3. The antibody of claim 1, which is an antibody fragment or a single chain antibody.

4. The antibody of claim 1, wherein said antibody binds to human O8E with a K_D of 5.5 x 10^{-9} M or less.

5. The antibody of claim 1, wherein said antibody binds to human O8E with a K_D of 3x10^{-9} M or less.

6. The antibody of claim 1, wherein said antibody is internalized.

7. The antibody of claim 1, wherein the breast cell carcinoma tumor cell line is selected from the group consisting of the SKBR3 cell line.

8. The antibody of claim 1, wherein said antibody lacks fucose residues.

9. An isolated monoclonal antibody or antigen-binding portion thereof, wherein the antibody cross-competes for binding to O8E with a reference antibody, wherein the reference antibody:

(a) binds to human O8E with a K_D of 1x10^{-7} M or less; and

(b) binds to a breast cell carcinoma tumor cell line.

10. The antibody of claim 9, wherein the reference antibody comprises:

(a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 1 ; and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 6.

11. The antibody of claim 9, wherein the reference antibody comprises:

(a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 2: and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 7.

12. The antibody of claim 9, wherein the reference antibody comprises:

(a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 3; and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 8.

13. The antibody of claim 9, wherein the reference antibody comprises:

(a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 4; and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 9.

14. The antibody of claim 9, wherein the reference antibody comprises:

(a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 5; and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 10.

15. An isolated monoclonal antibody or an antigen-binding portion thereof, comprising a heavy chain variable region that is the product of or derived from a human V_H 4-34 gene, a human V_H 3-53 gene or a V_H 3-9 gene, wherein the antibody specifically binds O8E.

16. An isolated monoclonal antibody or an antigen-binding portion thereof, comprising a light chain variable region that is the product of or derived from a human V_K A17 gene or human V_K L6 gene, wherein the antibody specifically binds to O8E.

17. The antibody of claim 1, which comprises:

a) a heavy chain variable region CDR1 comprising SEQ ID NO: 11;

b) a heavy chain variable region CDR2 comprising SEQ ID NO: 16;

c) a heavy chain variable region CDR3 comprising SEQ ID NO: 21;

d) a light chain variable region CDR1 comprising SEQ ID NO: 26;

e) a light chain variable region CDR2 comprising SEQ ID NO: 31; and

f) a light chain variable region CDR3 comprising SEQ ID NO: 36.

18. The antibody of claim 1, which comprises:

a) a heavy chain variable region CDR1 comprising SEQ ID NO: 12;

b) a heavy chain variable region CDR2 comprising SEQ ID NO: 17;

c) a heavy chain variable region CDR3 comprising SEQ ID NO: 22;

d) a light chain variable region CDR1 comprising SEQ ID NO: 27;

e) a light chain variable region CDR2 comprising SEQ ID NO: 32; and

f) a light chain variable region CDR3 comprising SEQ ID NO: 37.

19. The antibody of claim 1, which comprises:

a) a heavy chain variable region CDRI comprising SEQ ID NO: 13;

b) a heavy chain variable region CDR2 comprising SEQ ID NO: 18;

c) a heavy chain variable region CDR3 comprising SEQ ID NO: 23;

d) a light chain variable region CDRI comprising SEQ ID NO: 28;

e) a light chain variable region CDR2 comprising SEQ ID NO: 33; and

f) a light chain variable region CDR3 comprising SEQ ID NO: 38.

20. The antibody of claim 1, which comprises:

a) a heavy chain variable region CDRI comprising SEQ ID NO: 14;

b) a heavy chain variable region CDR2 comprising SEQ ID NO: 19;

c) a heavy chain variable region CDR3 comprising SEQ ID NO: 24;

d) a light chain variable region CDRI comprising SEQ ID NO: 29;

e) a light chain variable region CDR2 comprising SEQ ID NO: 34; and

f) a light chain variable region CDR3 comprising SEQ ID NO: 39.

21. The antibody of claim 1 , which comprises:

a) a heavy chain variable region CDRI comprising SEQ ID NO: 15;

b) a heavy chain variable region CDR2 comprising SEQ ID NO: 20;

c) a heavy chain variable region CDR3 comprising SEQ ID NO: 25;

d) a light chain variable region CDRI comprising SEQ ID NO: 30;

e) a light chain variable region CDR2 comprising SEQ ID NO: 35; and

f) a light chain variable region CDR3 comprising SEQ ID NO: 40.

22. An isolated monoclonal antibody or antigen binding portion thereof comprising:

a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 1 ; and

b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 6; wherein the antibody specifically binds O8E.

23. An isolated monoclonal antibody or antigen binding portion thereof comprising:

a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 2; and

b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 7; wherein the antibody specifically binds O8E.

24. An isolated monoclonal antibody or antigen binding portion thereof comprising:

a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 3; and

b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 8; wherein the antibody specifically binds O8E.

25. An isolated monoclonal antibody or antigen binding portion thereof comprising:

a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 4; and

b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 9; wherein the antibody specifically binds O8E.

26. An isolated monoclonal antibody or antigen binding portion thereof comprising:

a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 5; and

b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 10; wherein the antibody specifically binds O8E.

27. A composition comprising the antibody or antigen-binding portion thereof, of claim 1 and a pharmaceutically acceptable carrier.

28. An immunoconjugate comprising the antibody or antigen-binding portion thereof, of claim 1, linked to a therapeutic agent.

29. A composition comprising the immunoconjugate of claim 28 and a pharmaceutically acceptable carrier.

30. The immunoconjugate of claim 29, wherein the therapeutic agent is a cytotoxin.

31. A composition comprising the immunoconjugate of claim 30 and a pharmaceutically acceptable carrier.

32. The immunoconjugate of claim 28, wherein the therapeutic agent is a radioactive isotope.

33. A composition comprising the immunoconjugate of claim 32 and a pharmaceutically acceptable carrier.

34. An isolated nucleic acid molecule encoding the antibody or antigen-binding portion thereof, of claim 1.

35. An expression vector comprising the nucleic acid molecule of claim 34.

36. A host cell comprising the expression vector of claim 35.

37. A method for preparing an anti-O8E antibody which comprises expressing the antibody in the host cell of claim 38 and isolating the antibody from the host cell.

38. A method of treating or preventing a disease characterized by growth of tumor cells expressing O8E, comprising administering to a subject the antibody or antigen-binding portion thereof, of claim 1 in an amount effective to treat or prevent the disease.

39. The method of claim 38, wherein the disease is cancer.

40. The method of claim 39, wherein the cancer is a breast cell carcinoma.

41. The method of claim 39, wherein the cancer is ovarian cancer.

42. The method of claim 39, wherein the cancer is kidney cancer.

43. The method of claim 39, wherein the cancer is head and neck cancer.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An isolated human monoclonal antibody or antigen binding portion thereof, wherein the antibody or antigen binding portion thereof cross-competes for binding to O8E with a reference antibody or reference antigen binding portion thereof comprising:

(a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 1 and a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 6;

(b) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 2 and a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 7;

(c) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 3 and a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 8;

(d) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 4; and a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 9; or

(e) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 5 and a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 10.

2. The antibody or antigen binding portion thereof of claim 1, wherein the reference antibody or reference antigen binding-portion thereof comprises:

(a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 1; and

(b) a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 6.

3. The antibody or antigen binding portion thereof of claim 1, wherein the reference antibody or reference antigen binding-portion thereof comprises:

(a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 2; and

(b) a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 7.

4. The antibody or antigen binding portion thereof of claim 1, wherein the reference antibody or reference antigen binding-portion thereof comprises:

(a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 3; and

(b) a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 8.

5. The antibody or antigen binding portion thereof of claim 1, wherein the reference antibody or reference antigen binding-portion thereof comprises:

(a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 4; and

(b) a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 9.

6. The antibody or antigen binding portion thereof of claim 1, wherein the reference antibody or reference antigen binding-portion thereof comprises:

(a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 5; and

(b) a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 10.

7. The antibody or antigen binding portion thereof of any one of claims 1-6, wherein the antibody or antigen-binding portion thereof is internalized upon binding to its antigen.

8. The antibody or antigen binding portion thereof of any one of claims 1-6, wherein the antibody or antigen-binding portion thereof binds to a breast cell carcinoma tumor cell line, the breast cell carcinoma tumor cell line being SKBR3 cell line.

9. An isolated monoclonal antibody, or antigen binding portion thereof, comprising a heavy chain variable region that comprises CDR1, CDR2, and CDR3 domains; and a light chain variable region that comprises CDR1, CDR2, and CDR3 domains, wherein the heavy chain variable region and light chain variable region CDR3 domains are selected from the group consisting of:

(a) a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:21; and a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:36;

(b) a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:22; and a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:37;

(c) a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:23; and a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:38;

(d) a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:24; and a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:39; and

(e) a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:25; and a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:40;

wherein the antibody or antigen-binding portion thereof specifically binds to human O8E.

10. The antibody or antigen-binding portion thereof of claim 9, wherein the heavy chain variable region and light chain variable region CDR2 domains are selected from the group consisting of:

(a) a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:16; and a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:31;

(b) a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:17; and a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:32;

(c) a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:18; and a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:33;

(d) a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:19; and a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:34; and

(e) a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:20; and a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:35.

11. The antibody or antigen-binding portion thereof of claim 9 or 10, wherein the heavy chain variable region and light chain variable region CDR1 domains are selected from the group consisting of:

(a) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:11; and a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:26;

(b) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:12; and a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:27;

(c) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:13; and a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:28;

(d) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:14; and a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:29; and

(e) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:15; and a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:30.

12. An isolated monoclonal antibody, or antigen binding portion thereof, comprising a heavy chain variable region that comprises CDR1, CDR2, and CDR3 domains; and a light chain variable region that comprises CDR1, CDR2, and CDR3 domains, wherein the heavy chain variable region and light chain variable region CDR1, CDR2, and CDR3 domains are selected from the group consisting of:

(a) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:11; a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:16; a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:21; a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:26; a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:31; and a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:36;

(b) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:12; a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:17; a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:22; a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:27; a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID

NO:32; and a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:37;

(c) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:13; a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:18; a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:23; a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:28; a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:33; and a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:38;

(d) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:14; a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:19; a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:24; a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:29; a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:34; and a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:39; and

(e) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:15; a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:20; a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:25; a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO:30; a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO:35; and a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO:40;

wherein the antibody or antigen-binding portion thereof specifically binds to O8E.

13. The antibody or antigen binding portion thereof of claim 12, which comprises:

a) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO: 11;

b) a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO: 16;

c) a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO: 21;

d) a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO: 26;

e) a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO: 31; and

f) a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO: 36.

14. The antibody or antigen binding portion thereof of claim 12, which comprises:

a) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO: 12;

b) a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO: 17;

c) a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO: 22;

d) a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO: 27;

e) a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO: 32; and

f) a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO: 37.

15. The antibody or antigen binding portion thereof of claim 12, which comprises:

a) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO: 13;

b) a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO: 18;

c) a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO: 23;

d) a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO: 28;

e) a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO: 33; and

f) a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO: 38.

16. The antibody or antigen binding portion thereof of claim 12, which comprises:

a) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO: 14;

b) a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO: 19;

c) a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO: 24;

d) a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO: 29;

e) a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO: 34; and

f) a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO: 39.

17. The antibody or antigen binding portion thereof of claim 12, which comprises:

a) a heavy chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO: 15;

b) a heavy chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO: 20;

c) a heavy chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO: 25;

d) a light chain variable region CDR1 comprising amino acids having the sequence set forth in SEQ ID NO: 30;

e) a light chain variable region CDR2 comprising amino acids having the sequence set forth in SEQ ID NO: 35; and

f) a light chain variable region CDR3 comprising amino acids having the sequence set forth in SEQ ID NO: 40.

18. An isolated monoclonal antibody, or antigen binding portion thereof, comprising a heavy chain variable region and a light chain variable region, wherein the heavy chain variable region and light chain variable region are selected from the group consisting of:

(a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO:1; and a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO:6;

(b) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO:2; and a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO:7.

(c) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO:3; and a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO:8;

(d) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO:4; and a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO:9; and

(e) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO:5; and a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO:10;

wherein the antibody or antigen-binding portion thereof specifically binds to O8E.

19. The antibody or antigen binding portion thereof of claim 18, comprising:

a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 1; and

b) a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 6.

20. The antibody or antigen binding portion thereof of claim 18, comprising:

a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 2; and

b) a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 7.

21. The antibody or antigen binding portion thereof of claim 18, comprising:

a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 3; and

b) a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 8.

22. The antibody or antigen binding portion thereof of claim 18, comprising:

a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 4; and

b) a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 9.

23. The antibody or antigen binding portion thereof of claim 18, comprising:

a) a heavy chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 5; and

b) a light chain variable region comprising amino acids having the sequence set forth in SEQ ID NO: 10.

24. An isolated monoclonal antibody, or antigen binding portion thereof, comprising a heavy chain variable region and a light chain variable region, wherein the heavy chain variable region and light chain variable region are selected from the group consisting of:

(a) a heavy chain variable region comprising amino acids at least 95% identical to the sequence set forth in SEQ ID NO:1; and a light chain variable region comprising amino acids at least 95% identical to the sequence set forth in SEQ ID NO:6;

(b) a heavy chain variable region comprising amino acids at least 95% identical to the sequence set forth in SEQ ID NO:2; and a light chain variable region comprising amino acids at least 95% identical to the sequence set forth in SEQ ID NO:7.

(c) a heavy chain variable region comprising amino acids at least 95% identical to the sequence set forth in SEQ ID NO:3; and a light chain variable region comprising amino acids at least 95% identical to the sequence set forth in SEQ ID NO:8;

(d) a heavy chain variable region comprising amino acids at least 95% identical to the sequence set forth in SEQ ID NO:4; and a light chain variable region comprising amino acids at least 95% identical to the sequence set forth in SEQ ID NO:9; and

(e) a heavy chain variable region comprising amino acids at least 95% identical to the sequence set forth in SEQ ID NO:5; and a light chain variable region comprising amino acids at least 95% identical to the sequence set forth in SEQ ID NO:10;

wherein the antibody or antigen-binding portion thereof specifically binds to O8E.

25. An immunoconjugate comprising the antibody, or antigen-binding portion thereof, of any one of claims 1 to 24, linked to a therapeutic agent.

26. The antibody or antigen binding portion thereof of any one of claims 1 to 24, wherein the antibody or antigen-binding portion thereof lacks fucose residues.

27. A composition comprising the immunoconjugate of claim 25 and a pharmaceutically acceptable carrier.

28. The immunoconjugate of claim 25, wherein the therapeutic agent is a cytotoxin or a radioactive isotope.

29. An isolated nucleic acid molecule encoding the antibody, or antigen-binding portion thereof, of any one of claims 1 to 24.

30. An expression vector comprising the nucleic acid molecule of claim 29.

31. An isolated host cell comprising the expression vector of claim 30.

32. A method for preparing an anti-O8E antibody which comprises expressing the antibody in the isolated host cell of claim 31 and isolating the antibody from the isolated host cell.

33. Use of the antibody or antigen-binding portion thereof according to any one of claims 1 to 24 or 26 in the manufacture of a medicament for the treatment or prevention of a disease characterized by growth of tumor cells expressing O8E.

34. The use of the antibody or antigen-binding portion thereof of claim 33, wherein the disease is cancer.

35. The use of the antibody or antigen-binding portion thereof of claim 34, wherein the cancer is a breast cell carcinoma, ovarian cancer, kidney cancer or head and neck cancer.

36. The use of the antibody or antigen-binding portion thereof of claim 33, wherein the antibody or antigen-binding portion thereof is linked to a therapeutic agent.

37. The use of claim 36, wherein the therapeutic agent is a cytotoxin or a radioactive isotope.