Claims

1. An isolated monoclonal antibody, or an antigen-binding portion thereof, which comprises:

(a) a heavy chain variable region CDR1 comprising SEQ ID NO:2;

(b) a heavy chain variable region CDR2 comprising SEQ ID NO:6 or SEQ ID NO:60;

(c) a heavy chain variable region CDR3 comprising SEQ ID NO:10;

(d) a light chain variable region CDR1 comprising SEQ ID NO:14;

(e) a light chain variable region CDR2 comprising SEQ ID NO:20; and

(f) a light chain variable region CDR3 comprising SEQ ID NO:26,

wherein the antibody binds to human CD22.

2. The antibody, or antigen-binding portion thereof, of claim 1, wherein the antibody, or antigen binding portion thereof, is linked to a partner molecule, wherein the partner molecule is a therapeutic agent.

3. The antibody, or antigen binding portion thereof, of claim 2, wherein the therapeutic agent is a cytotoxin.

4. The antibody, or antigen binding portion thereof, of claim 2, wherein the therapeutic agent is a radioactive isotope.

5. An isolated monoclonal antibody, or an antigen-binding portion thereof, which comprises:

(a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO:32 or 61; and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO:36,

wherein the antibody binds to human CD22.

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

7. The antibody, or antigen-binding portion thereof, of claim 1, comprising:

(a) a heavy chain variable region CDR1 comprising SEQ ID NO:2;

(b) a heavy chain variable region CDR2 comprising SEQ ID NO:6;

(c) a heavy chain variable region CDR3 comprising SEQ ID NO:10;

(d) a light chain variable region CDR1 comprising SEQ ID NO:14;

(e) a light chain variable region CDR2 comprising SEQ ID NO:20; and

(f) a light chain variable region CDR3 comprising SEQ ID NO:26.

8. The antibody, or antigen-binding portion thereof, of claim 1, comprising:

(a) a heavy chain variable region CDR1 comprising SEQ ID NO:2;

(b) a heavy chain variable region CDR2 comprising SEQ ID NO:60;

(c) a heavy chain variable region CDR3 comprising SEQ ID NO:10;

(d) a light chain variable region CDR1 comprising SEQ ID NO:14;

(e) a light chain variable region CDR2 comprising SEQ ID NO:20; and

(f) a light chain variable region CDR3 comprising SEQ ID NO:26.

9. The antibody, or antigen-binding portion thereof, of claim 5, comprising:

(a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO:32; and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO:36.

10. The antibody, or antigen-binding portion thereof, of claim 5, comprising:

(a) a heavy chain variable region comprising the amino acid sequence of SEQ ID NO:61; and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO:36.

11. The antibody, or antigen-binding portion thereof, of claim 5, wherein the antibody, or antigen binding portion thereof, is linked to a partner molecule, wherein the partner molecule is a therapeutic agent.

12. A composition comprising the antibody, or antigen-binding portion thereof, of claim 5, and a pharmaceutically acceptable carrier.

13. The antibody, or antigen-binding portion thereof, of claim 1, which is a full-length antibody of an IgG1 isotype.

14. The antibody, or antigen-binding portion thereof, of claim 1, which is a full-length antibody of an IgG4 isotype.

15. The antibody, or antigen-binding portion thereof, of claim 1, which is a human antibody.

16. The antibody, or antigen-binding portion thereof, of claim 1, which is a humanized antibody or a chimeric antibody.

17. The antibody, or antigen-binding portion thereof, of claim 5, which is a full-length antibody of an IgG1 isotype.

18. The antibody, or antigen-binding portion thereof, of claim 5, which is a full-length antibody of an IgG4 isotype.

19. The antibody, or antigen-binding portion thereof, of claim 5, which is a human antibody.

20. The antibody, or antigen-binding portion thereof, of claim 11, wherein the therapeutic agent is a cytotoxin or a radioactive isotope.

CLAIMS

1. An isolated human monoclonal antibody, or an antigen-binding portion thereof, wherein the antibody binds human CD22 and comprises:

(a) a heavy chain variable region CDR1 comprising SEQ ID NO:2;

(b) a heavy chain variable region CDR2 comprising SEQ ID NO:6 or SEQ ID NO:60;

(c) a heavy chain variable region CDR3 comprising SEQ ID NO:10;

(d) a light chain variable region CDR1 comprising SEQ ID NO:14;

(e) a light chain variable region CDR2 comprising SEQ ID NO:20; and

(f) a light chain variable region CDR3 comprising SEQ ID NO:26.

2. The antibody, or an antigen-binding portion thereof, of claim 1, wherein said antibody binds to human CD22 with a K_D of 1×10^{-7} M or less.

3. The antibody, or an antigen-binding portion thereof, of claim 2, wherein said antibody binds to human CD22 with a K_D of 5×10^{-8} M or less.

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

(a) a heavy chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NOs:32 and 61; and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO:36;

wherein the antibody specifically binds human CD22.

5. A composition comprising the antibody, or antigen-binding portion thereof, of any one of claims 1 to 4, and a pharmaceutically acceptable carrier.

6. An immunoconjugate, comprising the antibody, or antigen-binding portion thereof, of any one of claims 1 to 4, and a partner molecule, wherein the partner molecule is a therapeutic agent.

7. The immunoconjugate of claim 6, wherein the therapeutic agent is a cytotoxin or a radioactive isotope.

8. The immunoconjugate of claim 6 or claim 7, wherein the partner molecule is conjugated to the antibody by a chemical linker.

9. The immunoconjugate of claim 8, wherein the chemical linker is selected from the group consisting of peptidyl linkers, hydrazine linkers, and disulfide linkers.

10. A composition comprising the immunoconjugate of any one of claims 6 to 9 and a pharmaceutically acceptable carrier.

11. An isolated nucleic acid molecule encoding the antibody, or antigen-binding portion thereof, of any one of claims 1 to 4.

12. An expression vector comprising the nucleic acid molecule of claim 11.

13. A host cell comprising the expression vector of claim 12, wherein said host cell is not present in a human.

14. A method for preparing an anti-CD22 antibody which comprises expressing the antibody in the host cell of claim 13 and isolating the antibody from the host cell.

15. A method of inhibiting growth of a CD22-expressing tumor cell, the method comprising contacting the CD22-expressing tumor cell with the antibody, or antigen-binding portion thereof, of any one of claims 1 to 4, or the immunoconjugate of any one of claims 6 to 9, such that growth of the CD22-expressing tumor cell is inhibited.

16. The method of claim 15, wherein the tumor cell is a B cell lymphoma.

17. The method of claim 16, wherein the B cell lymphoma is a non-Hodgkin's lymphoma.

18. The antibody, or antigen-binding portion thereof, of claim 3, wherein said antibody binds to human CD22 with a K_D of 7×10^{-11} M or less.

19. The antibody, or an antigen-binding portion thereof, of claim 1, which comprises:

(a) a heavy chain variable region CDR1 comprising SEQ ID NO:2;

(b) a heavy chain variable region CDR2 comprising SEQ ID NO:6;

(c) a heavy chain variable region CDR3 comprising SEQ ID NO:10;

(d) a light chain variable region CDR1 comprising SEQ ID NO:14;

(e) a light chain variable region CDR2 comprising SEQ ID NO:20; and

(f) a light chain variable region CDR3 comprising SEQ ID NO:26.

20. The antibody, or an antigen-binding portion thereof, of claim 1, which comprises:

(a) a heavy chain variable region CDR1 comprising SEQ ID NO:2;

(b) a heavy chain variable region CDR2 comprising SEQ ID NO:60;

(c) a heavy chain variable region CDR3 comprising SEQ ID NO:10;

(d) a light chain variable region CDR1 comprising SEQ ID NO:14;

(e) a light chain variable region CDR2 comprising SEQ ID NO:20; and

(f) a light chain variable region CDR3 comprising SEQ ID NO:26.

21. The antibody, or antigen binding portion thereof, of claim 4, which comprises:

(a) a heavy chain variable region comprising an amino acid sequence of SEQ ID NO: 32; and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 36.

22. The antibody, or antigen binding portion thereof, of claim 4, which comprises:

(a) a heavy chain variable region comprising an amino acid sequence of SEQ ID NO: 61; and

(b) a light chain variable region comprising the amino acid sequence of SEQ ID NO: 36.