Claims

1. A recombinant antibody, or an antigen-binding fragment thereof, that binds immunospecifically to BCMA, wherein the antibody has a heavy chain and a light chain, said heavy chain and light chain comprising: a heavy chain complementarity determining region 1 (CDR1) having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 5, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 6, a light chain CDR1 having the amino acid sequence of SEQ ID NO: 24, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 25, and a light chain CDR3 having the amino acid sequence of SEQ ID NO: 26.

2. The antibody or antigen-binding fragment of claim 1, wherein the heavy chain of the antibody comprises the amino acid sequence of SEQ ID NO: 27, and the light chain of the antibody comprises the amino acid sequence of SEQ ID NO:28.

3. The antibody or antigen-binding fragment of any one of claims 1 and 2, wherein the antibody or antigen-binding fragment thereof binds to the extracellular domain of human BCMA.

4. The antibody or antigen-binding fragment of any one of claims 1 and 2, wherein the antibody or antigen-binding fragment is a human antibody or antigen-binding fragment.

5. The antigen binding fragment of any one of claims 1 and 2, wherein the antigen binding fragment is a Fab fragment, a Fab2 fragment, or a single chain antibody.

6. The antibody or antigen-binding fragment of any one of claims 1 and 2, wherein the antibody or antigen-binding fragment thereof inhibits the interaction of BCMA and APRIL.

7. The antibody or antigen-binding fragment of claim 6, wherein the antibody or antigen-binding fragment exhibits an IC_{50} for the interaction of BCMA and APRIL of about 5.9 nM as measured by ELISA.

8. The antibody or antigen-binding fragment of any one of claims 1 and 2, wherein the antibody or antigen-binding fragment thereof is an IgG.

9. The antibody or antigen-binding fragment of any one of claims 1 and 2, is an IgG4 isotype.

10. The antibody of claim 9 wherein the IgG4 has a S228P substitution, a L234A substitution and a L235A substitution in its Fc region.

11. The antibody or antigen-binding fragment of any one of claims 1 and 2, wherein the antibody or antigen-binding fragment thereof immunospecifically binds human BCMA and cross reacts to cynomolgus monkey BCMA.

12. The antibody or antigen-binding fragment of any one of claims 1 and 2, wherein the antibody or antigen-binding fragment thereof binds BCMA on the surface of human myeloma cells.

13. The antibody or antigen-binding fragment of any one of claims 1 and 2, wherein the antibody or antigen-binding fragment thereof binds BCMA on the surface of human multiple myeloma cells.

14. A recombinant cell expressing the antibody or antigen-binding fragment of any one of claims 1 and 2.

15. The cell of claim 14 wherein the cell is a hybridoma.

16. The cell of claim 14 wherein the antibody is recombinantly produced.