

CLAIMS

What is claimed is:

1. A monoclonal antibody or antigen-binding fragment thereof that specifically binds CD47 and comprises:
 - a variable heavy chain CDR1 amino acid sequence (HCDR1) amino acid sequence set forth in SEQ ID NO:3;
 - a variable heavy chain CDR2 amino acid sequence (HCDR2) amino acid sequence set forth in SEQ ID NO:6;
 - a variable heavy chain CDR3 amino acid sequence (HCDR3) amino acid sequence set forth in SEQ ID NO:10;
 - a variable light chain CDR1 amino acid sequence (LCDR1) amino acid sequence set forth in SEQ ID NO:14;
 - a variable light chain CDR2 amino acid sequence (LCDR2) amino acid sequence set forth in SEQ ID NO:17; and
 - a variable light chain CDR3 amino acid sequence (LCDR3) amino acid sequence set forth in SEQ ID NO:18.
2. The monoclonal antibody or antigen-binding fragment thereof of claim 1, wherein the monoclonal antibody, or antigen-binding fragment thereof is chimeric or humanized.
3. The monoclonal antibody or antigen-binding fragment thereof of claim 1, wherein the monoclonal antibody, or antigen-binding fragment thereof specifically binds human CD47.
4. The monoclonal antibody or antigen-binding fragment thereof of claim 3, wherein the monoclonal antibody, or antigen-binding fragment thereof specifically binds at least one of cynomolgus monkey, rat, or mouse CD47.
5. The monoclonal antibody or antigen-binding fragment thereof of claim 1, further comprising a heavy chain variable domain (V_H) and a light chain variable domain (V_L), selected from:
 - (i) a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:36 and a light chain variable domain comprising the amino acid sequence SEQ ID NO:51;
 - (ii) a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:36 and a light chain variable domain comprising the amino acid sequence SEQ ID NO:52;
 - (iii) a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:37 and a light chain variable domain comprising the amino acid sequence SEQ ID NO:51;
 - (iv) a heavy chain variable domain comprising the amino acid sequence SEQ ID NO:37 and a light chain variable domain comprising the amino acid sequence SEQ ID NO:52;
 - (v) a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:38 and a light chain variable domain comprising the amino acid sequence SEQ ID NO:51; and
 - (vi) a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:38 and a light chain variable domain comprising the amino acid sequence SEQ ID NO:52.

6. The monoclonal antibody or antigen-binding fragment thereof of claim 5, wherein the monoclonal antibody or antigen-binding fragment thereof further comprises an IgG isotype selected from IgG1, IgG1-N297Q, IgG2, IgG4, IgG4 S228P, and IgG4 PE.
7. The monoclonal antibody or antigen binding fragment thereof of claim 5, comprising one heavy chain and one light chain selected from:
 - (i) a heavy chain comprising the amino acid sequence of SEQ ID NO:80 and a light chain comprising the amino acid sequence SEQ ID NO:70;
 - (ii) a heavy chain comprising the amino acid sequence of SEQ ID NO:79 and a light chain comprising the amino acid sequence SEQ ID NO:70;
 - (iii) a heavy chain comprising the amino acid sequence of SEQ ID NO:79 and a light chain comprising the amino acid sequence SEQ ID NO:73;
 - (iv) a heavy chain comprising the amino acid sequence of SEQ ID NO:80 and a light chain comprising the amino acid sequence SEQ ID NO:73.
8. The monoclonal antibody or antigen binding fragment thereof of claim 7 comprising a heavy chain comprising the amino acid sequence of SEQ ID NO:80 and a light chain comprising the amino acid sequence SEQ ID NO:70.
9. A pharmaceutical composition, comprising the monoclonal antibody, or antigen-binding fragment thereof, of claim 1, and a pharmaceutically or physiologically acceptable carrier, diluent, or excipient.
10. A pharmaceutical composition, comprising the monoclonal antibody, or antigen-binding fragment thereof, of claim 5, and a pharmaceutically or physiologically acceptable carrier, diluent, or excipient.
11. A pharmaceutical composition, comprising the monoclonal antibody, or antigen-binding fragment thereof, of claim 6, and a pharmaceutically or physiologically acceptable carrier, diluent, or excipient.
12. A pharmaceutical composition, comprising the monoclonal antibody, or antigen-binding fragment thereof, of claim 7, and a pharmaceutically or physiologically acceptable carrier, diluent, or excipient.
13. A pharmaceutical composition, comprising the monoclonal antibody, or antigen-binding fragment thereof, of claim 8, and a pharmaceutically or physiologically acceptable carrier, diluent, or excipient.
14. The pharmaceutical composition of claim 13, wherein the pharmaceutical composition is to be administered intravenously.