CLAIMS

1. An isolated monoclonal antibody or immunologically active fragment thereof that binds to human CD47, wherein the antibody or immunologically active fragment thereof binds to a discontinuous epitope on CD47, wherein the discontinuous epitope comprises amino acids residues Y37, K39, K41, K43, G44, R45, D46, D51, H90, N93, E97, T99, E104, and E106 of CD47 when numbered in accordance with SEQ ID NO: 147, and wherein the antibody or immunologically active fragment thereof prevents CD47 from interacting with signal-regulatory-protein α (SIRPα) and does not cause a significant level of agglutination of cells after administration.

2. The antibody or immunologically active fragment thereof of claim 1, wherein the antibody or immunologically active fragment thereof is chimeric or humanized.

3. The antibody or immunologically active fragment thereof of claim 1 or 2, wherein the antibody or immunologically active fragment thereof promotes macrophage-mediated phagocytosis of a CD47-expressing cell.

4. The antibody or immunologically active fragment thereof of any one of claims 1 to 3, wherein the antibody or immunologically active fragment thereof is an IgG isotype selected from the group consisting of IgG 1 isotype, IgG2 isotype, IgG3 isotype, and IgG4 isotype.

5. The antibody or immunologically active fragment thereof of any one of claims 1 to 3, wherein the antibody or immunologically active fragment thereof is an IgG isotype selected from IgG4P and IgG4PE.

6. The antibody or immunologically active fragment thereof of any one of claims 1 to 5, wherein the antibody or immunologically active fragment thereof comprises:

(i) a VH CDR1 sequence set forth in SEQ ID NO: 50,
a VH CDR2 sequence set forth in SEQ ID NO: 72,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 53,
a VL CDR2 sequence set forth in SEQ ID NO: 71, and

a VL CDR3 sequence set forth in SEQ ID NO: 55;

(ii) a VH CDR1 sequence set forth in SEQ ID NO: 50,
a VH CDR2 sequence set forth in SEQ ID NO: 51,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 53,
a VL CDR2 sequence set forth in SEQ ID NO: 54, and
a VL CDR3 sequence set forth in SEQ ID NO: 55;

(iii) a VH CDR1 sequence set forth in SEQ ID NO: 50,
a VH CDR2 sequence set forth in SEQ ID NO: 51,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 67,
a VL CDR2 sequence set forth in SEQ ID NO: 69, and
a VL CDR3 sequence set forth in SEQ ID NO: 55;

(iv) a VH CDR1 sequence set forth in SEQ ID NO: 50,
a VH CDR2 sequence set forth in SEQ ID NO: 51,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 67,
a VL CDR2 sequence set forth in SEQ ID NO: 70, and
a VL CDR3 sequence set forth in SEQ ID NO: 55;

(v) a VH CDR1 sequence set forth in SEQ ID NO: 50,
a VH CDR2 sequence set forth in SEQ ID NO: 51,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 68,
a VL CDR2 sequence set forth in SEQ ID NO: 54, and
a VL CDR3 sequence set forth in SEQ ID NO: 55;

(vi) a VH CDR1 sequence set forth in SEQ ID NO: 50,
a VH CDR2 sequence set forth in SEQ ID NO: 72,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 68,
a VL CDR2 sequence set forth in SEQ ID NO: 54, and
a VL CDR3 sequence set forth in SEQ ID NO: 55;

(vii) a VH CDR1 sequence set forth in SEQ ID NO: 50,
a VH CDR2 sequence set forth in SEQ ID NO: 72,
a VH CDR3 sequence set forth in SEQ ID NO: 52,

a VL CDR1 sequence set forth in SEQ ID NO: 68,
a VL CDR2 sequence set forth in SEQ ID NO: 71, and
a VL CDR3 sequence set forth in SEQ ID NO: 55;

(viii) a VH CDR1 sequence set forth in SEQ ID NO: 50,
a VH CDR2 sequence set forth in SEQ ID NO: 76,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 68,
a VL CDR2 sequence set forth in SEQ ID NO: 54, and
a VL CDR3 sequence set forth in SEQ ID NO: 55;

(ix) a VH CDR1 sequence set forth in SEQ ID NO: 50,
a VH CDR2 sequence set forth in SEQ ID NO: 76,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 68,
a VL CDR2 sequence set forth in SEQ ID NO: 71, and
a VL CDR3 sequence set forth in SEQ ID NO: 55

(x) a VH CDR1 sequence set forth in SEQ ID NO: 50,
a VH CDR2 sequence set forth in SEQ ID NO: 51,
a VH CDR3 sequence set forth in SEQ ID NO: 77,
a VL CDR1 sequence set forth in SEQ ID NO: 53,
a VL CDR2 sequence set forth in SEQ ID NO: 54, and
a VL CDR3 sequence set forth in SEQ ID NO: 55;

(xi) a VH CDR1 sequence set forth in SEQ ID NO: 57,
a VH CDR2 sequence set forth in SEQ ID NO: 51,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 53,
a VL CDR2 sequence set forth in SEQ ID NO: 54, and
a VL CDR3 sequence set forth in SEQ ID NO: 55;

(xii) a VH CDR1 sequence set forth in SEQ ID NO: 60,
a VH CDR2 sequence set forth in SEQ ID NO: 51,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 53,
a VL CDR2 sequence set forth in SEQ ID NO: 54, and
a VL CDR3 sequence set forth in SEQ ID NO: 55;

(xiii) a VH CDR1 sequence set forth in SEQ ID NO: 61,

a VH CDR2 sequence set forth in SEQ ID NO: 51,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 53,
a VL CDR2 sequence set forth in SEQ ID NO: 54, and
a VL CDR3 sequence set forth in SEQ ID NO: 55; or

(xiv) a VH CDR1 sequence set forth in SEQ ID NO: 62,
a VH CDR2 sequence set forth in SEQ ID NO: 51,
a VH CDR3 sequence set forth in SEQ ID NO: 52,
a VL CDR1 sequence set forth in SEQ ID NO: 53,
a VL CDR2 sequence set forth in SEQ ID NO: 54, and
a VL CDR3 sequence set forth in SEQ ID NO: 55.

7. The antibody or immunologically active fragment thereof of any one of claims 1 to 6, wherein the antibody or immunologically active fragment thereof comprises:

(i) a VH sequence set forth in SEQ ID NO: 5, and
a VL sequence set forth in SEQ ID NO: 31;

(ii) a VH sequence set forth in SEQ ID NO: 5, and
a VL sequence set forth in SEQ ID NO: 32;

(iii) a VH sequence set forth in SEQ ID NO: 7, and
a VL sequence set forth in SEQ ID NO: 33;

(iv) a VH sequence set forth in SEQ ID NO: 7, and
a VL sequence set forth in SEQ ID NO: 34;

(v) a VH sequence set forth in SEQ ID NO: 7, and
a VL sequence set forth in SEQ ID NO: 35;

(vi) a VH sequence set forth in SEQ ID NO: 7, and
a VL sequence set forth in SEQ ID NO: 36;

(vii) a VH sequence set forth in SEQ ID NO: 7, and
a VL sequence set forth in SEQ ID NO: 37;

(viii) a VH sequence set forth in SEQ ID NO: 7, and
a VL sequence set forth in SEQ ID NO: 38;

(ix) a VH sequence set forth in SEQ ID NO: 7, and
a VL sequence set forth in SEQ ID NO: 39;

(x) a VH sequence set forth in SEQ ID NO: 7, and
a VL sequence set forth in SEQ ID NO: 43;

(xi) a VH sequence set forth in SEQ ID NO: 8, and
a VL sequence set forth in SEQ ID NO: 39;
(xii) a VH sequence set forth in SEQ ID NO: 11, and
a VL sequence set forth in SEQ ID NO: 42;
(xiii) a VH sequence set forth in SEQ ID NO: 11, and
a VL sequence set forth in SEQ ID NO: 43;
(xiv) a VH sequence set forth in SEQ ID NO: 11, and
a VL sequence set forth in SEQ ID NO: 44;
(xv) a VH sequence set forth in SEQ ID NO: 11, and
a VL sequence set forth in SEQ ID NO: 47;
(xvi) a VH sequence set forth in SEQ ID NO: 15, and
a VL sequence set forth in SEQ ID NO: 43;
(xvii) a VH sequence set forth in SEQ ID NO: 15, and
a VL sequence set forth in SEQ ID NO: 44;
(xviii) a VH sequence set forth in SEQ ID NO: 16, and
a VL sequence set forth in SEQ ID NO: 35;
(xix) a VH sequence set forth in SEQ ID NO: 17, and
a VL sequence set forth in SEQ ID NO: 35;
(xx) a VH sequence set forth in SEQ ID NO: 20, and
a VL sequence set forth in SEQ ID NO: 35;
(xxi) a VH sequence set forth in SEQ ID NO: 21, and
a VL sequence set forth in SEQ ID NO: 35;
(xxii) a VH sequence set forth in SEQ ID NO: 22, and
a VL sequence set forth in SEQ ID NO: 35;
(xxiii) a VH sequence set forth in SEQ ID NO: 27, and
a VL sequence set forth in SEQ ID NO: 35;
(xxiv) a VH sequence set forth in SEQ ID NO: 28, and
a VL sequence set forth in SEQ ID NO: 35;
(xxv) a VH sequence set forth in SEQ ID NO: 29, and
a VL sequence set forth in SEQ ID NO: 35; or
(xxvi) a VH sequence set forth in SEQ ID NO: 30, and
a VL sequence set forth in SEQ ID NO: 35.

8. A pharmaceutical composition comprising the antibody or immunologically active fragment thereof of any one of claims 1 to 7 and a carrier.

9. Use of the antibody or immunologically active fragment thereof of any one of claims 1 to 7 in the manufacture of a medicament for the treatment of a cancer or other neoplastic condition in a subject.

10. The use of claim 9, wherein the subject is a human.

11. The use of claim 9 or 10, wherein the medicament is to be administered with chemotherapy.

12. The use of claim 9 or 10, wherein the medicament is to be administered with radiotherapy.