CLAIMS

WHAT IS CLAIMED IS:

1. A recombinant antibody that specifically binds Leukemia Inhibitory Factor (LIF), the antibody comprising:

a) a heavy chain complementarity determining region 1 (VH-CDR1) comprising the amino acid sequence set forth in SEQ ID NO: 2 (GFTFSHAW);

b) a heavy chain complementarity determining region 2 (VH-CDR2) comprising the amino acid sequence set forth in SEQ ID NO: 10 (IKAKSDDYAT);

c) a heavy chain complementarity determining region 3 (VH-CDR3) comprising the amino acid sequence set forth in SEQ ID NO: 15 (TCWEWDLDF);

d) a light chain complementarity determining region 1 (VL-CDR1) comprising the amino acid sequence set forth in SEQ ID NO: 22 (QSLLDSDGHTY);

e) a light chain complementarity determining region 2 (VL-CDR2) comprising the amino acid sequence set forth in SEQ ID NO: 26 (SVS); and

f) a light chain complementarity determining region 3 (VL-CDR3) comprising the amino acid sequence set forth in SEQ ID NO: 29 (MQATHAPPYT).

2. The recombinant antibody of claim 1, wherein the recombinant antibody binds to glycosylated LIF.

3. The recombinant antibody of claim 1, wherein the recombinant antibody is humanized.

4. The recombinant antibody of claim 1, wherein the recombinant antibody is deimmunized.

5. The recombinant antibody of claim 1, wherein the recombinant antibody comprises two heavy chains and two light chains.

6. The recombinant antibody of claim 1, wherein the recombinant antibody is an IgG antibody.

7. The recombinant antibody of claim 1, wherein the recombinant antibody is a Fab,

$F(ab)_2$, single-domain antibody, a single chain variable fragment (scFv), or a nanobody.

8. The recombinant antibody of claim 1, wherein the VH-CDR1 comprises the amino acid sequence set forth in SEQ ID NO: 1 (GFTFSHAWMH), the VH-CDR2 comprises the amino acid sequence set forth in SEQ ID NO: 9 (QIKAKSDDYATYYAESVKG), and the VH-CDR3 comprises the amino acid sequence set forth in SEQ ID NO: 15 (TCWEWDLDF), and wherein the VL-CDR1 comprises the amino acid sequence set forth in SEQ ID NO: 21 (RSSQSLLDSDGHTYLN), the VL-CDR2 comprises the amino acid sequence set forth in SEQ ID NO: 25 (SVSNLES), and the VL-CDR3 comprises the amino acid sequence set forth in SEQ ID NO: 29 (MQATHAPPYT).

9. The recombinant antibody of claim 1, wherein the heavy chain comprises a VH sequence at least 90% identical to the amino acid sequence set forth in SEQ ID NO: 72; and the light chain comprises a VL sequence at least 90% identical to the amino acid sequence set forth in SEQ ID NO: 76.

10. The recombinant antibody of claim 9, wherein the VH sequence is at least 95% identical to the amino acid sequence set forth in SEQ ID NO: 72; and the VL sequence is at least 95% identical to the amino acid sequence set forth in SEQ ID NO: 76.

11. The recombinant antibody of claim 9, wherein the VH sequence comprises the amino acid sequence set forth in SEQ ID NO: 72, and the VL sequence comprises the amino acid sequence set forth in SEQ ID NO: 76.

12. The recombinant antibody of claim 1, wherein the heavy chain comprises a sequence at least 90% identical to the amino acid sequence set forth in SEQ ID NO: 88; and the light chain comprises a sequence at least 90% identical to the amino acid sequence set forth in SEQ ID NO: 92.

13. The recombinant antibody of claim 12, wherein the heavy chain comprises the sequence at least 95% identical to the amino acid sequence set forth in SEQ ID NO: 88; and the light chain comprises the sequence at least 95% identical to the amino acid sequence set forth in SEQ ID NO: 92.

14. The recombinant antibody of claim 13, wherein the heavy chain comprises the amino acid sequence set forth in SEQ ID NO: 88; and the light chain comprises the amino acid sequence set forth in SEQ ID NO: 92.

15. A pharmaceutical composition comprising the recombinant antibody of claim 1 and a pharmaceutically acceptable carrier.

16. The pharmaceutical composition of claim 15, formulated for intravenous injection.

17. The pharmaceutical composition of claim 15, wherein the pharmaceutical composition is in lyophilized form.