

What is claimed is:

1. An isolated antibody or antigen-binding fragment thereof that binds human leptin receptor (LEPR), wherein the antibody or antigen-binding fragment thereof comprises: (a) the complementarity determining regions (CDRs) of a heavy chain variable region (HCVR) that comprises an amino acid sequence set forth in a SEQ ID NO selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 42, and SEQ ID NO: 58 and (b) the CDRs of a light chain variable region (LCVR) that comprises the amino acid sequence set forth in SEQ ID NO: 10.

2. The isolated antibody or antigen-binding fragment thereof of claim 1, wherein the antibody or antigen-binding fragment comprises a light chain variable region comprising:

an LCDR1 that comprises the amino acid sequence set forth in SEQ ID NO: 12; an LCDR2 that comprises the amino acid sequence set forth in SEQ ID NO: 14, and an LCDR3 that comprises the amino acid sequence set forth in SEQ ID NO: 16;

and

a heavy chain variable region comprising:

(i)

an HCDR1 that comprises the amino acid sequence set forth in SEQ ID NO: 4;

an HCDR2 that comprises the amino acid sequence set forth in SEQ ID NO: 6;

and

an HCDR3 that comprises the amino acid sequence set forth in SEQ ID NO: 8;

(ii)

an HCDR1 that comprises the amino acid sequence set forth in SEQ ID NO: 44;

an HCDR2 that comprises the amino acid sequence set forth in SEQ ID NO: 46;

and

an HCDR3 that comprises the amino acid sequence set forth in SEQ ID NO: 48;

or

(iii)

an HCDR1 that comprises the amino acid sequence set forth in SEQ ID NO: 60;

an HCDR2 that comprises the amino acid sequence set forth in SEQ ID NO: 62;

and

an HCDR3 that comprises the amino acid sequence set forth in SEQ ID NO: 64.

3. The isolated antibody or antigen-binding fragment thereof of claim 2, which is an antibody comprising a heavy chain variable region that comprises the amino acid sequence set forth in SEQ ID NO: 2 and a light chain variable region that comprises the amino acid sequence set forth in SEQ ID NO: 10.

4. The isolated antibody or antigen-binding fragment thereof of claim 2 which is an antibody comprising a heavy chain variable region that comprises the amino acid sequence set forth in SEQ ID NO: 42 and a light chain variable region that comprises the amino acid sequence set forth in SEQ ID NO: 10.

5. The isolated antibody or antigen-binding fragment thereof of claim 2 which is an antibody comprising a heavy chain variable region that comprises the amino acid sequence set forth in SEQ ID NO: 58 and a light chain variable region that comprises the amino acid sequence set forth in SEQ ID NO: 10.

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

7. The antibody of claim 3 wherein the heavy chain variable region is linked to a human IgG4 Fc.

8. The antibody of claim 4 wherein the heavy chain variable region is linked to a human IgG4 Fc.

9. The antibody of claim 5 wherein the heavy chain variable region is linked to a human IgG4 Fc.

10. A pharmaceutical composition comprising the antibody of claim 7, and a pharmaceutically acceptable carrier or diluent.

11. A pharmaceutical composition comprising the antibody of claim 8, and a pharmaceutically acceptable carrier or diluent.

12. A pharmaceutical composition comprising the antibody of claim 9, and a pharmaceutically acceptable carrier or diluent.

13. The isolated antibody or antigen-binding fragment thereof of claim 1, wherein the antibody or antigen-binding fragment comprises a light chain variable region comprising:

an LCDR1 that comprises the amino acid sequence set forth in SEQ ID NO: 12;

an LCDR2 that comprises the amino acid sequence set forth in SEQ ID NO: 14;

and

an LCDR3 that comprises the amino acid sequence set forth in SEQ ID NO: 16;

and a heavy chain variable region comprising:

an HCDR1 that comprises the amino acid sequence set forth in SEQ ID NO: 4;

an HCDR2 that comprises the amino acid sequence set forth in SEQ ID NO: 6;

and

an HCDR3 that comprises the amino acid sequence set forth in SEQ ID NO: 8.

14. The isolated antibody or antigen-binding fragment thereof of claim 1, wherein the antibody or antigen-binding fragment comprises a light chain variable region comprising:

an LCDR1 that comprises the amino acid sequence set forth in SEQ ID NO: 12;

an LCDR2 that comprises the amino acid sequence set forth in SEQ ID NO: 14;

and

an LCDR3 that comprises the amino acid sequence set forth in SEQ ID NO: 16;

and

a heavy chain variable region comprising:

an HCDR1 that comprises the amino acid sequence set forth in SEQ ID NO: 44;

an HCDR2 that comprises the amino acid sequence set forth in SEQ ID NO: 46;

and

an HCDR3 that comprises the amino acid sequence set forth in SEQ ID NO: 48.

15. The isolated antibody or antigen-binding fragment thereof of claim 1, wherein the antibody or antigen-binding fragment comprises a light chain variable region comprising:

an LCDR1 that comprises the amino acid sequence set forth in SEQ ID NO: 12;
an LCDR2 that comprises the amino acid sequence set forth in SEQ ID NO: 14;
and
an LCDR3 that comprises the amino acid sequence set forth in SEQ ID NO: 16;
and
a heavy chain variable region comprising:
an HCDR1 that comprises the amino acid sequence set forth in SEQ ID NO: 60;
an HCDR2 that comprises the amino acid sequence set forth in SEQ ID NO: 62;
and
an HCDR3 that comprises the amino acid sequence set forth in SEQ ID NO: 64.

16. An autoinjector that comprises the antibody of claim 3.
17. An autoinjector that comprises the antibody of claim 4.
18. An autoinjector that comprises the antibody of claim 5.
19. A pen delivery device that comprises the antibody of claim 3.
20. A pen delivery device that comprises the antibody of claim 4.
21. A pen delivery device that comprises the antibody of claim 5.
22. The antibody of claim 7 wherein the light chain variable region is linked to a kappa light chain constant domain.
23. The antibody of claim 8 wherein the light chain variable region is linked to a kappa light chain constant domain.
24. The antibody of claim 9 wherein the light chain variable region is linked to a kappa light chain constant domain.