## CLAIMS

We claim:

1. A binding protein capable of binding prolactin receptor (PRLR), wherein said binding protein comprises a light chain variable domain comprising a light chain variable domain CDR set (CDR1, CDR2, and CDR3) selected from the group consisting of SEQ ID NOs: 49, 50, and 51; SEQ ID NOs: 65, 66, and 67; SEQ ID NOs: 79, 80, and 81; SEQ ID Nos;100, 101, and 102; and SEQ ID NOs: 92, 93, and 94, and comprises a heavy chain variable domain comprising a heavy chain variable domain CDR set selected from the group consisting of SEQ ID NOs: 40, 41, and 42; SEQ ID NOs: 46, 47, and 42; SEQ ID NOs: 56, 57, and 58; SEQ ID NOs: 62, 63, and 58; SEQ ID NOs: 71, 72, and 73; SEQ ID NOs: 71, 77, and 73; SEQ ID NOs: 85, 86, and 87; SEQ ID NOs: 149, 150, and 87; SEQ ID Nos: 97, 98, 99; and SEQ ID Nos: 151, 152, and 99.

2. The binding protein according to claim 1, wherein said at least two variable domain CDR sets are selected from a group consisting of:
(1) either of the heavy chain variable domain CDR sets SEQ ID Nos:40, 41 and 42 or SEQ ID Nos:46, 47 and 42, and the light chain variable domain CDR set SEQ ID Nos:49, 50 and 51;
(2) either of the heavy chain variable domain CDR sets SEQ ID Nos:56, 57 and 58 or SEQ ID Nos: 62, 63 and 58, and the light chain variable domain CDR set SEQ ID Nos 65, 66 and 67;
(3) either of the heavy chain variable domain CDR sets SEQ ID Nos: 71, 72 and 73 or SEQ ID Nos: 71, 77 and 73, and the light chain variable domain CDR set SEQ ID Nos: 79, 80 and 81; and
(4) either of the heavy chain variable domain CDR sets SEQ ID Nos:85, 86 and 87 or SEQ ID Nos: 149, 150 and 87, and the light chain variable domain CDR set SEQ ID Nos: 92, 93 and 94.

3. The binding protein according to any one of the preceding claims, further comprising a human acceptor framework.

4. The binding protein according to claim 3, wherein said human acceptor framework comprises an amino acid sequence selected from the group consisting of SEQ ID Nos:14-38 or 158.

5. The binding protein according to claim 3, wherein said human acceptor framework comprises at least one Framework Region amino acid substitution, wherein the amino acid sequence of the framework is at least 65% identical to the sequence of said human acceptor framework and comprises at least 70 amino acid residues identical to said human acceptor framework.

6. The binding protein according to claim 5, wherein said human acceptor framework comprises at least one Framework Region amino acid substitution at a key residue, said key residue selected from the group consisting of:
a residue adjacent to a CDR;
a glycosylation site residue;
a residue capable of interacting with human PRLR;
a residue capable of interacting with a CDR;
a contact residue between heavy chain variable region and light chain variable region;
a residue within a Vernier zone; and
a residue in a region that overlaps between a Chothia-defined variable heavy chain CDR1 and a Kabat-defined first heavy chain framework.

7. The binding protein according to claim 6, wherein said key residue is selected from the group consisting of 2L, 43L, 48L, 58L, 64L, 87L, 27H, 48H, 60H, 63H, 64H, 65H, 67H, 69H, 71H, 73H, 75H, 93H.

8. The binding protein according to claim 7, wherein the binding protein is a consensus human variable domain.

9. The binding protein according to any one of the preceding claims, wherein said binding protein comprises at least one variable domain having an amino acid sequence selected from the group consisting of SEQ ID NO: 39; SEQ ID NO: 43; SEQ ID NO: 44; SEQ ID NO: 45; SEQ ID NO: 55; SEQ ID NO: 59; SEQ ID NO: 60; SEQ ID NO: 61; SEQ ID NO: 70; SEQ ID NO: 74; SEQ ID NO: 75; SEQ ID NO: 76; SEQ ID NO: 84; SEQ ID NO: 88; SEQ ID NO: 89; SEQ ID NO: 90; SEQ ID NO: 121; SEQ ID NO: 122 and SEQ ID NO: 123.

10. The binding protein according to any one of the preceding claims, wherein said binding protein comprises two variable domains, wherein said two variable domains have amino acid sequences selected from the group consisting of:
(1) one of SEQ ID NO: 39; SEQ ID NO: 43; SEQ ID NO: 44 or SEQ ID NO: 45; and one of SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO: 53 or SEQ ID NO:54;
(2) one of SEQ ID NO: 55; SEQ ID NO: 59; SEQ ID NO: 60 or SEQ ID NO: 61; and one of SEQ ID NO:64, SEQ ID NO:68 or SEQ ID NO: 69;
(3) one of SEQ ID NO: 70; SEQ ID NO: 74; SEQ ID NO: 75 or SEQ ID NO: 76; and one of SEQ ID NO:78, SEQ ID NO:82 or SEQ ID NO: 83; and
(4) one of SEQ ID NO: 84; SEQ ID NO: 88; SEQ ID NO: 89; SEQ ID NO: 90; SEQ ID NO: 121; SEQ ID NO: 122 or SEQ ID NO: 123; and one of SEQ ID NO:91, SEQ ID NO:95 or SEQ ID NO:96.

11. The binding protein according to any one of the preceding claims, wherein said binding protein comprises at least one variable domain having an amino acid sequence selected from the group consisting of SEQ ID NO: 52; SEQ ID NO: 48; SEQ ID NO: 53; SEQ ID NO: 54; SEQ ID NO: 64; SEQ ID NO: 68; SEQ ID NO: 69; SEQ ID NO: 78; SEQ ID NO: 82; SEQ ID NO: 83; SEQ ID NO: 91; SEQ ID NO: 95; and SEQ ID NO: 96.

12. The binding protein according to any one of the preceding claims, wherein said binding protein comprises a heavy chain sequence and a light chain sequence selected from the group consisting of:

(a) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(b) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(c) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(d) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(e) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(f) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(g) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(h) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(i) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(j) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(k) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(l) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(m) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(n) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(o) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(p) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(q) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(r) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(s) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(t) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(u) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(v) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(w) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(x) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(y) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(z) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(aa) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(bb) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(cc) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(dd) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(ee) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ff) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(gg) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(hh) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ii) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(jj) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(kk) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ll) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(mm) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(nn) a heavy chain having the amino acid sequence of SEQ ID NO: 153; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(oo) a heavy chain having the amino acid sequence of SEQ ID NO: 154; and a light chain having the amino acid sequence of SEQ ID NO: 139; and

(pp) a heavy chain having the amino acid sequence of SEQ ID NO: 155; and a light chain having the amino acid sequence of SEQ ID NO: 139.

13. The binding protein according to any one of the preceding claims, wherein the binding protein binds the ligand binding D1 domain of PRLR.

14. The binding protein according to any one of the preceding claims, wherein the binding protein inhibits binding of prolactin to PRLR.

15. The binding protein according to any one of the preceding claims, wherein the binding protein is capable of neutralizing PRLR.

16. The binding protein according to any one of the preceding claims, wherein said binding protein has an on rate constant ($K_{on}$) to PRLR selected from the group consisting of: at least about $10^2 M^{-1}s^{-1}$; at least about $10^3 M^{-1}s^{-1}$; at least about $10^4 M^{-1}s^{-1}$; at least about $10^5 M^{-1}s^{-1}$; and at least about $10^6 M^{-1}s^{-1}$; as measured by surface plasmon resonance.

17. The binding protein according to any one of the preceding claims, wherein said binding protein has an off rate constant ($K_{off}$) to PRLR selected from the group consisting of: at most about $10^{-3}s^{-1}$; at most about $10^{-4}s^{-1}$; at most about $10^{-5}s^{-1}$; and at most about $10^{-6}s^{-1}$, as measured by surface plasmon resonance.

18. The binding protein according to any one of the preceding claims, wherein said binding protein has a dissociation constant ($K_D$) to PRLR selected from the group consisting of: at most about $10^{-7}$ M; at most about $10^{-8}$ M; at most about $10^{-9}$ M; at most about $10^{-10}$ M; at most about $10^{-11}$ M; at most about $10^{-12}$ M; and at most $10^{-13}$ M.

19. A binding protein capable of binding PRLR and competing with an antibody, comprising a heavy chain variable domain and a light chain variable domain selected from the group consisting of:

(1) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 39; SEQ ID NO: 43; SEQ ID NO: 44 and SEQ ID NO: 45; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO: 53 and SEQ ID NO:54;

(2) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 55; SEQ ID NO: 59; SEQ ID NO: 60 and SEQ ID NO: 61; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:64, SEQ ID NO:68 and SEQ ID NO: 69;

(3) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 84; SEQ ID NO: 88; SEQ ID NO: 89; SEQ ID NO: 90; SEQ ID NO: 121; SEQ ID NO: 122; and SEQ ID NO: 123; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:91, SEQ ID NO:95 and SEQ ID NO:96;

(4) the variable heavy chain amino acid sequence set forth in SEQ ID NO:112 and the variable light chain amino acid sequence set forth in SEQ ID NO:103;

(5) the variable heavy chain amino acid sequence set forth in SEQ ID NO:113 and the variable light chain amino acid sequence set forth in SEQ ID NO:104;

(6) the variable heavy chain amino acid sequence set forth in SEQ ID NO:114 and the variable light chain amino acid sequence set forth in SEQ ID NO:105;

(7) the variable heavy chain amino acid sequence set forth in SEQ ID NO:116 and the variable light chain amino acid sequence set forth in SEQ ID NO:107;

(8) the variable heavy chain amino acid sequence set forth in SEQ ID NO:117 and the variable light chain amino acid sequence set forth in SEQ ID NO:108;

(9) the variable heavy chain amino acid sequence set forth in SEQ ID NO:118 and the variable light chain amino acid sequence set forth in SEQ ID NO:109;

(10) the variable heavy chain amino acid sequence set forth in SEQ ID NO:119 and the variable light chain amino acid sequence set forth in SEQ ID NO:110; and

(11) the variable heavy chain amino acid sequence set forth in SEQ ID NO:120 and the variable light chain amino acid sequence set forth in SEQ ID NO:111;

wherein the binding protein is a monoclonal antibody, and

wherein the binding protein binds to an epitope overlapping with or identical to the epitope of the antibody.

20. The binding protein of claim 19, wherein the binding protein competes with an antibody comprising a heavy chain variable domain and a light chain variable domain selected from the group consisting of:

(1) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 39; SEQ ID NO: 43; SEQ ID NO: 44 and SEQ ID NO: 45; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO: 53 and SEQ ID NO:54;

(2) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 55; SEQ ID NO: 59; SEQ ID NO: 60 and SEQ ID NO: 61; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:64, SEQ ID NO:68 and SEQ ID NO: 69;

(3) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 84; SEQ ID NO: 88; SEQ ID NO: 89; SEQ ID NO: 90; SEQ ID NO: 121; SEQ ID NO: 122; and SEQ ID NO: 123; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:91, SEQ ID NO:95 and SEQ ID NO:96;

(4) the variable heavy chain amino acid sequence set forth in SEQ ID NO:112 and the variable light chain amino acid sequence set forth in SEQ ID NO:103;

(5) the variable heavy chain amino acid sequence set forth in SEQ ID NO:113 and the variable light chain amino acid sequence set forth in SEQ ID NO:104;

(6) the variable heavy chain amino acid sequence set forth in SEQ ID NO:114 and the variable light chain amino acid sequence set forth in SEQ ID NO:105; and

(7) the variable heavy chain amino acid sequence set forth in SEQ ID NO:120 and the variable light chain amino acid sequence set forth in SEQ ID NO:111;

wherein the binding protein is a monoclonal antibody.

21. The binding protein of claim 19, wherein the binding protein competes with an antibody comprising the variable heavy chain amino acid sequence set forth in SEQ ID NO:119 and the variable light chain amino acid sequence set forth in SEQ ID NO:110.

22. The binding protein of claim 19, wherein the binding protein competes with an antibody comprising a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 39; SEQ ID NO: 43; SEQ ID NO: 44 and SEQ ID NO: 45; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO: 53 and SEQ ID NO:54.

23. The binding protein of claim 19, wherein the binding protein competes with an antibody comprising a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 84; SEQ ID NO: 88; SEQ ID NO: 89; SEQ ID NO: 90; SEQ ID NO: 121; SEQ ID NO: 122; and SEQ ID NO: 123; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:91, SEQ ID NO:95 and SEQ ID NO:96.

24. A binding protein capable of binding PRLR and competing with an antibody comprising a heavy chain sequence and a light chain sequence selected from the group consisting of:

(a) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(b) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(c) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(d) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(e) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(f) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(g) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(h) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(i) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(j) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(k) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(l) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(m) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(n) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(o) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(p) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(q) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(r) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(s) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(t) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(u) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(v) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(w) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(x) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(y) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(z) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(aa) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(bb) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(cc) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(dd) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(ee) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ff) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(gg) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(hh) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ii) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(jj) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(kk) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ll) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(mm) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(nn) a heavy chain having the amino acid sequence of SEQ ID NO: 153; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(oo) a heavy chain having the amino acid sequence of SEQ ID NO: 154; and a light chain having the amino acid sequence of SEQ ID NO: 139; and

(pp) a heavy chain having the amino acid sequence of SEQ ID NO: 155; and a light chain having the amino acid sequence of SEQ ID NO: 139;

wherein the binding protein is a monoclonal antibody, and

wherein the binding protein binds to an epitope overlapping with or identical to the epitope of the antibody.

25. A binding protein capable of binding PRLR, that binds to an epitope in PRLR comprising five, six, seven, eight, nine or all of the amino acid residues E8, F10, C12, R25, E43, G44, I76, D91, E92, L93, Y94, V95, D96, Y99, I100, E145, F160, K185, D187, H188, Y190 and W191 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

26. The binding protein of claim 25, wherein the epitope comprises all of amino acid residues E8, F10, C12, R25, E43, G44, I76, D91, E92, L93, Y94, V95, D96, Y99, I100, E145, F160, K185, D187, H188, Y190 and W191 of SEQ ID NO:2.

27. The binding protein of any one of claims 25-26, wherein the binding protein is an antibody, or antigen binding portion thereof, selected from the group consisting of Ab1, Ab6, chAb6, and Ab14-Ab25.

28. A binding protein capable of binding PRLR that binds to an epitope in PRLR comprising five, six, seven, eight, nine or all of the amino acid residues E8, I9, F10, K11, C12, R25, E43, G44, W72, T74, I76, D91,

E92, L93, Y94, V95, D96, T98, Y99, I100, W139, L143, E145, F160, K185, D187, H188, Y190 and W191 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

29. The binding protein of claim 28, wherein the epitope comprises all of amino acid residues E8, I9, F10, K11, C12, R25, E43, G44, W72, T74, I76, D91, E92, L93, Y94, V95, D96, T98, Y99, I100, W139, L143, E145, F160, K185, D187, H188, Y190 and W191 of SEQ ID NO:2.

30. The binding protein of any one of claims 28-29, wherein the binding protein is an antibody, or antigen binding portion thereof, selected from the group consisting of Ab4, Ab7, chAb7, Ab35-Ab43 and Ab53-Ab55.

31. A binding protein capable of binding PRLR that binds to an epitope in PRLR comprising 13, 14, 15, 16, 17, 18, 19, 20, 21 or all of the amino acid residues R25, T141, L143, E145, R147, E155, W156, E157, I158, H159, F160, A161, G162, Q163, Q164, F167, S171, R183, K185, D187, H188, W191 and W194 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

32. The binding protein of claim 31, wherein the epitope comprises at least 15 of the amino acid residues.

33. The binding protein of claim 31, wherein the epitope comprises all of amino acid residues R25, T141, L143, E145, R147, E155, W156, E157, I158, H159, F160, A161, G162, Q163, Q164, F167, S171, R183, K185, D187, H188, W191, and W194 of SEQ ID NO:2.

34. The binding protein of any one of claims 31-33, wherein the binding protein is an antibody, or antigen binding portion thereof, selected from the group consisting of Ab3, Ab8, chAb8 and Ab44-Ab52.

35. A binding protein capable of binding PRLR that binds to an epitope in PRLR comprising amino acid residues R25, K185, D187, H188 or W191 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

36. A binding protein capable of binding PRLR that binds to an epitope in PRLR comprising amino acids 91-96 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

37. The binding protein of claim 36, wherein the binding protein comprises an antibody, or antigen binding portion thereof, selected from the group consisting of Ab1, Ab4, Ab6, Ab7, chAb6, chAb7, Ab14-Ab25, Ab35-Ab43 and Ab53-Ab55.

38. A binding protein capable of binding PRLR that binds to an epitope having residues within at least amino acids 8-100, 185-191, 8-143, or 183-194 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

39. The binding protein of claim 38, wherein the binding protein is an antibody, or antigen binding portion thereof, selected from the group consisting of Ab1, Ab3, Ab4, Ab6-Ab8, chAb6, chAb7, chAb8, Ab14-Ab25 and Ab35-Ab55.

40. A binding protein capable of binding PRLR and having the same epitopic specificity as an antibody, or antigen-binding portion thereof, selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, chAb5, Ab6, chAb6, Ab7, chAb7, Ab8, chAb8, Ab9, chAb9, Ab10, chAb10, Ab11, chAb11, Ab12, chAb12, Ab13, chAb13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23, Ab24, Ab25, Ab26, Ab27, Ab28, Ab29, Ab30, Ab31, Ab32, Ab33, Ab34, Ab35, Ab36, Ab37, Ab38, Ab39, Ab40, Ab41, Ab42, Ab43, Ab44, Ab45, Ab46, Ab47, Ab48, Ab49, Ab50, Ab51, Ab52, Ab53, Ab54 and Ab55, wherein the binding protein is a monoclonal antibody.

41. The binding protein of any one of claims 19-40, wherein the binding protein binds the ligand binding D1 domain of PRLR.

42. The binding protein of any one of claims 19-41, wherein the binding protein binds an epitope of PRLR which does not inhibit dimerization of PRLR.

43. The binding protein of any one of claims 19-42, wherein the binding protein does not bind the D2 domain of PRLR.

44. The binding protein of any one of claims 19-43, wherein the binding protein inhibits binding of prolactin to PRLR.

45. The binding protein of any one of claims 19-44, wherein the binding protein does not compete with antibody LFA102 for binding of PRLR.

46. The binding protein of any one of claims 1-18, wherein the binding protein is an antibody.

47. An antibody construct comprising the binding protein of any one of claims 1-46, said antibody construct further comprising a linker polypeptide or an immunoglobulin constant domain.

48. The antibody construct according to claim 47, wherein said binding protein is selected from the group consisting of:

an immunoglobulin molecule,
a monoclonal antibody,
a chimeric antibody,
a CDR-grafted antibody,
a humanized antibody,
a Fab,
a Fab',
a F(ab')2,
a Fv,
a disulfide linked Fv,
a scFv,
a single domain antibody,
a diabody,
a multispecific antibody,
a dual specific antibody, and
a bispecific antibody.

49. The antibody construct according to any one of claims 47-48, wherein said binding protein comprises a heavy chain immunoglobulin constant domain selected from the group consisting of: a human IgM constant domain, a human IgG4 constant domain, a human IgG1 constant domain, a human IgE constant domain, a human IgG2 constant domain, and a human IgG3 constant domain, a human IgA constant domain.

50. The antibody construct according to any one of claims 47-49, comprising an immunoglobulin constant domain having an amino acid sequence selected from the group consisting of SEQ ID Nos:10-13.

51. An antibody conjugate comprising the antibody construct of any one of claims 47-50, said antibody conjugate further comprising an agent selected from the group consisting of: an immunoadhension molecule, an imaging agent, a therapeutic agent, and a cytotoxic agent.

52. The antibody conjugate according to claim 51, wherein said agent is an imaging agent selected from the group consisting of a radiolabel, an enzyme, a fluorescent label, a luminescent label, a bioluminescent label, a magnetic label, and biotin.

53. The antibody conjugate according to claim 51, wherein said imaging agent is a radiolabel selected from the group consisting of: $^{3}H$, $^{14}C$, $^{35}S$, $^{90}Y$, $^{99}Tc$, $^{111}In$, $^{125}I$, $^{131}I$, $^{177}Lu$, $^{166}Ho$, and $^{153}Sm$.

54. The antibody conjugate according to claim 51, wherein said agent is a therapeutic or cytotoxic agent selected from the group consisting of: an anti-metabolite, an alkylating agent, an antibiotic, a growth factor, a cytokine, an anti-angiogenic agent, an anti-mitotic agent, an anthracycline, toxin, and an apoptotic agent.

55. The antibody conjugate according to claim 54, wherein the anti-mitotic agent is selected from the group consisting of a dolastatin, an auristatin, a maytansinoid, a plant alkaloid, a taxane, and a vinca alkaloid.

56. The antibody construct according to any one of claims 47-55, wherein said binding protein possesses a human glycosylation pattern.

57. The binding protein according to any one of claims 1-46, wherein said binding protein is a crystallized binding protein.

58. The antibody construct according to any one of claims 47-56, wherein said antibody construct is a crystallized antibody construct.

59. The antibody construct according to claim 58, wherein said crystallized antibody construct is a carrier-free pharmaceutical controlled release crystallized antibody construct.

60. The antibody construct according to claim 58 or 59, wherein said antibody construct has a greater half life *in vivo* than the soluble counterpart of said antibody construct.

61. An isolated nucleic acid encoding an amino acid sequence of the binding protein of any one of claims 1-46.

62. An isolated nucleic acid encoding an antibody construct amino acid sequence of any one of claims 47-56.

63. A vector comprising an isolated nucleic acid according to claim 61 or 62.

64. The vector of claim 62 wherein said vector is selected from the group consisting of pcDNA, pTT, pTT3, pEFBOS, pBV, pJV, and pBJ.

65. A host cell comprising a vector according to claim 63 or 64.

66. The host cell according to claim 65, wherein said host cell is a prokaryotic cell or a eukaryotic cell.

67. The host cell according to claim 66, wherein said prokaryotic host cell is E.Coli.

68. The host cell according to claim 66, wherein said eukaryotic cell is selected from the group consisting of a protist cell, an animal cell, a plant cell and a fungal cell.

69. The host cell according to claim 68, wherein said animal cell is selected from the group consisting of a mammalian cell, an avian cell, and an insect cell.

70. The host cell according to claim 65, wherein said host cell is selected from the group consisting of a CHO cell, a COS cell, a yeast cell, and an insect Sf9 cell.

71. The host cell according to claim 70, wherein said yeast cell is *Saccharomyces cerevisiae*.

72. A method of producing a protein capable of binding PRLR, comprising culturing the host cell of any one of claims 65-71 in culture medium under conditions sufficient to produce a binding protein capable of binding PRLR.

73. A composition for the release of a binding protein said composition comprising:
(a) a formulation, wherein said formulation comprises a crystallized binding protein, according to claim 57, and an ingredient; and
(b) at least one polymeric carrier.

74. The composition according to claim 73, wherein said polymeric carrier is a polymer selected from one or more of the group consisting of: poly (acrylic acid), poly (cyanoacrylates), poly (amino acids), poly (anhydrides), poly (depsipeptide), poly (esters), poly (lactic acid), poly (lactic-co-glycolic acid) or PLGA, poly (b-hydroxybutryate), poly (caprolactone), poly (dioxanone); poly (ethylene glycol), poly ((hydroxypropyl) methacrylamide, poly [(organo) phosphazene], poly (ortho esters), poly (vinyl alcohol), poly (vinylpyrrolidone), maleic anhydride- alkyl vinyl ether copolymers, pluronic polyols, albumin, alginate, cellulose and cellulose derivatives, collagen, fibrin, gelatin, hyaluronic acid, oligosaccharides, glycaminoglycans, sulfated polysaccharides, blends and copolymers thereof.

75. The composition according to claim 73 or 74, wherein said ingredient is selected from the group consisting of albumin, sucrose, trehalose, lactitol, gelatin, hydroxypropyl-□- cyclodextrin, methoxypolyethylene glycol and polyethylene glycol.

76. Use of the composition according to any one of claims 73-75 in the manufacture of a medicament for treating a disease in which PRLR is detrimental in a mammal.

77. A pharmaceutical composition comprising the binding protein of any one of claims 1-46, and a pharmaceutically acceptable carrier.

78. The pharmaceutical composition of claim 77 wherein said pharmaceutically acceptable carrier functions as adjuvant useful to increase the absorption, or dispersion of said binding protein.

79. The pharmaceutical composition of claim 78 wherein said adjuvant is hyaluronidase.

80. The pharmaceutical composition of any one of claims 77-79 further comprising at least one additional therapeutic agent for treating a disorder in which PRLR activity is detrimental.

81. The pharmaceutical composition of claim 80, wherein said additional agent is selected from the group consisting of: therapeutic agent, imaging agent, cytotoxic agent, angiogenesis inhibitors; kinase inhibitors; co-stimulation molecule blockers; adhesion molecule blockers; anti-cytokine antibody or functional fragment thereof; methotrexate; cyclosporin; rapamycin; FK506; detectable label or reporter; a TNF antagonist; an anti-rheumatic; a muscle relaxant, a narcotic, a non-steroid anti-inflammatory drug (NSAID), an analgesic, an anesthetic, a sedative, a local anesthetic, a neuromuscular blocker, an antimicrobial, an antipsoriatic, a corticosteriod, an anabolic steroid, an erythropoietin, an immunization, an immunoglobulin, an immunosuppressive, a growth hormone, a hormone replacement drug, a radiopharmaceutical, an antidepressant, an antipsychotic, a stimulant, an asthma medication, a beta agonist, an inhaled steroid, an oral steroid, an epinephrine or analog, a cytokine, and a cytokine antagonist.

82. Use of the binding protein of any one of claims 1-46 in the manufacture of a medicament for reducing PRLR activity in a human subject having a disorder in which PRLR activity is detrimental.

83. Use of the binding protein of any one of claims 1-46 in the manufacture of a medicament for treating a subject having a disorder in which PRLR activity is detrimental.

84. The use of claim 83, wherein the disorder is a cancer.

85. The use of claim 84, wherein the cancer is selected from the group consisting of melanoma, endometrial cancer, lymphoma, breast cancer, ovarian cancer, renal carcinoma, gastrointestinal cancer, colon cancer, lung cancer, pancreatic cancer, and prostate cancer.

86. The use of claim 84, wherein the cancer is breast cancer.

87. The use method according to any one of claims 83-86, wherein said binding protein is administered to the subject by a mode selected from the group consisting of parenteral, subcutaneous, intramuscular, intravenous, intrarticular, intrabronchial, intraabdominal, intracapsular, intracartilaginous, intracavitary, intracelial, intracerebellar, intracerebroventricular, intracolic, intracervical, intragastric, intrahepatic, intramyocardial, intraosteal, intrapelvic, intrapericardiac, intraperitoneal, intrapleural, intraprostatic, intrapulmonary, intrarectal, intrarenal, intraretinal, intraspinal, intrasynovial, intrathoracic, intrauterine, intravesical, bolus, vaginal, rectal, buccal, sublingual, intranasal, and transdermal.

88. An anti-PRLR antibody, or antigen binding fragment thereof, that specifically competes with an anti-PRLR binding protein of any one of claims 1-46, wherein said competition can be detected in a competitive binding assay using said antibody, the human PRLR polypeptide, and the anti-PRLR binding protein, wherein the binding protein is a monoclonal antibody, and wherein the anti-PRLR antibody, or antigen binding fragment thereof, binds to an epitope overlapping with or identical to the epitope of the binding protein.

89. An anti-PRLR Antibody Drug Conjugate (ADC) comprising the anti-PRLR antibody, or antigen-binding fragment thereof, according to any one of claims 4-6, and at least one drug.

90. The anti-PRLR Antibody Drug Conjugate (ADC) of claim 89, wherein the antibody, or antigen-binding portion thereof, comprises at least 3 CDRs selected from a heavy chain variable domain CDR set (CDR1, CDR2, and CDR3) consisting of SEQ ID NOs: 40, 41, and 42; SEQ ID NOs: 46, 47, and 42; SEQ ID NOs: 56, 57, and 58; SEQ ID NOs: 62, 63, and 58; SEQ ID NOs: 71, 72, and 73; SEQ ID NOs: 71, 77, and 73; SEQ ID NOs: 85, 86, and 87; SEQ ID NOs: 149, 150, and 87.

91. The anti-PRLR Antibody Drug Conjugate (ADC) of claim 89 or 90, wherein the antibody, or antigen-binding portion thereof, comprises at least 3 CDRs selected from a light chain variable domain CDR set (CDR1, CDR2, and CDR3) consisting of SEQ ID NOs: 49, 50, and 51; SEQ ID NOs: 65, 66, and 67; SEQ ID NOs: 79, 80, and 81; and SEQ ID NOs: 92, 93, and 94.

92. The ADC of any one of claims 89-91, wherein the drug is selected from the group consisting of a mitotic inhibitor, an antitumor antibiotic, an immunomodulating agent, a vector for gene therapy, an alkylating agent, an antiangiogenic agent, an antimetabolite, a boron-containing agent, a chemoprotective agent, a hormone, an antihormone agent, a corticosteroid, a photoactive therapeutic agent, an oligonucleotide, a radionuclide agent, a topoisomerase inhibitor, a tyrosine kinase inhibitor, and a radiosensitizer.

93. The ADC of any one of claims 89-92, wherein the drug is selected from the group consisting of Ixempra, dolastatin 10, dolatstin 15, auristatin E, auristatin PE, monomethyl auristatin D (MMAD or auristatin D derivative), monomethyl auristatin E (MMAE or auristatin E derivative), monomethyl auristatin F (MMAF or auristatin F derivative), auristatin F phenylenediamine (AFP), auristatin EB (AEB), auristatin EFP (AEFP), 5-benzoylvaleric acid-AE ester (AEVB), methotrexate, daunorubicin, vincristine, maytansine, maytansinol, C-3 esters of maytansinol, ansamitocin P1, ansamitocin P2, ansamitocin P3, ansamitocin P4, docetaxel, paclitaxel, nanoparticlae paclitaxel, vindesine sulfate, vincristine, vinblastine, vinorelbine, actinomycines, pyrrolo[2,1-c][1,4]benzodiazepines, pyrrolobenzodiazepine (PBD) dimer,actinomycin D, anthramycin, chicamycin A, DC-18, mazethramycin, neothramycin A, neothramycin B, porothramycin, prothracarcin B, SG2285, sibanomicin, sibiromycin, tomaymycin, anthracyclines, daunorubicin,

doxorubicin, epirubicin, idarubicin, calicheamicins, $\gamma_1^I$, $\alpha_2^I$, $\alpha_3^I$, N-acetyl-$\gamma_1^I$, PSAG, $\theta^I_1$, duocarmycins, adozelesin, bizelesin, and carzelesin, bleomycin, mitomycin, plicamycin, bacillus calmette-guerin (BCG), levamisole, cancer vaccines, recombinant bivalent human papillomavirus (HPV) vaccine types 16 and 18 vaccine, recombinant quadrivalent human papillomavirus (HPV) types 6, 11, 16, and 18 vaccine, sipuleucel-T, cytokines, parathyroid hormone; thyroxine; insulin; proinsulin; relaxin; prorelaxin; glycoprotein hormones such as follicle stimulating hormone (FSH), thyroid stimulating hormone (TSH), and luteinizing hormone (LH), hepatic growth factor; fibroblast growth factor, prolactin, placental lactogen, tumor necrosis factor, mullerian-inhibiting substance, mouse gonadotropin-associated peptide, inhibin, activin, vascular endothelial growth factor, integrin, thrombopoietin (TPO), nerve growth factors such as NGF, platelet-growth factor, transforming growth factors (TGFs), insulin-like growth factor-I and -II, erythropoietin (EPO), osteoinductive factors, interferons such as interferon α, β,nd γ, colony stimulating factors (CSFs), granulocyte-macrophage-C-SF (GM-CSF), and granulocyte-CSF (G-CSF), interleukins (ILs) such as IL-1, IL-1α, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-11, IL-12, tumor necrosis factor and other polypeptide factors including LIF and kit ligand (KL), colony-stimulating factors, erythropoietin (epoetin), filgrastim, sargramostim, promegapoietin, Oprelvekin, immunomodulating gene therapeutics, nucleic acid encoding a functional, therapeutic gene that is used to replace a mutated or otherwise dysfuntional (*e.g.* truncated) gene associated with cancer, nucleic acid that encodes for or otherwise provides for the production of a therapeutic protein to treat cancer, alkyl sulfonates, busulfan, nitrogen mustards, chlorambucil, cyclophosphamide, estramustine, ifosfamide, mechlorethamine, and melphalan, nitrosoureas, carmustine, fotemustine, lomustine, nimustine, streptozocin, triazines and hydrazines, dacarbazine, procarbazine, temozolomide, ethylenimimes, thiopeta, diaziquone, mitomycin C, methylamine derivatives, epoxides, altretamine, dianhydrogalactitol, dibromodulcitol, angiostatin, ABX EFG, C1-1033, PKI-166, EGF vaccine, EKB-569, GW2016, ICR-62, EMD 55900, CP358, PD153035, AG1478, IMC-C225, OSI-774, Erlotinib, angiostatin, arrestin, endostatin, BAY 12-9566 and w/fluorouracil or doxorubicin, canstatin, carboxyamidotriozole and with paclitaxel, EMD121974, S-24, vitaxin, dimethylxanthenone acetic acid, IM862, Interleukin-12, Interleukin-2, NM-3, HuMV833, PTK787, RhuMab, angiozyme, IMC-1C11, Neovastat, marimstat, prinomastat, BMS-275291,COL-3, MM1270, SU101, SU6668, SU11248, SU5416, with paclitaxel, with gemcitabine and cisplatin, and with irinotecan and cisplatin and with radiation, tecogalan, temozolomide and PEG interferon α2b, tetrathiomolybdate, TNP-470, thalidomide, CC-5013 and with taxotere, tumstatin, 2-methoxyestradiol, VEGF trap, mTOR inhibitors (deforolimus, everolimus, and temsirolimus), tyrosine kinase inhibitors (*e.g.*, imatinib, gefitinib, dasatinib, sunitinib, nilotinib, lapatinib, sorafenib, phosphoinositide 3-kinases (PI3K), folic acid antagonists, methotrexate, 4-amino-folic acid, lometrexol, pemetrexed, trimetrexate, a pyrimidine antagonists, azacitidine, capecitabine, cytarabine, decitabine, 5-fluorouracil, 5-fluoro-2'-deoxyuridine 5'-phosphate, 5-fluorouridine triphosphate, gemcitabine, foxuridine, a purine antagonist azathioprine, cladribine, mercaptopurine, fludarabine, pentostatin, 6-thioguanine, adenosine deaminase inhibitors, Cladribine, Fludarabine, Nelarabine, Pentostatin, borophycin, bortezomib, chemoprotective agents,

amifostine, dexrazoxane, mesna, androgens, estrogens, medroxyprogesterone acetate, progestins, aminoglutethimide, anastrozole, bicalutamide, chlorotrianises, cyproterone acetate, degarelix, exemestane, flutamide, fulvestrant, goserelin, letrozole, leuprolide, lupron, medroxyprogesterone acetate, Megestrol acetate, tamoxifen, triptorelin, asparaginase, dacarbazine, hydroxyurea, levamisole, mitotane, procarbazane, tretinoin, glucocorticoids, prednisone, chromagens, dyes, antisense oligonucleotides whether naturally occurring or synthesized using standard and/or non-standard nucleotides (including RNA interference (RNAi)), double-stranded RNA (dsRNA), small interferring RNA (siRNA), microRNA (miRNA), aptamers, CpG oligonucleotides, ribozymes, angiozyme, $^{111}$In, $^{177}$Lu, $^{212}$Bi, $^{213}$Bi, $^{211}$At, $^{62}$Cu, $^{64}$Cu, $^{67}$Cu, $^{90}$Y, $^{125}$I, $^{131}$I, $^{32}$P, $^{33}$P, $^{47}$Sc, $^{111}$Ag, $^{67}$Ga, $^{142}$Pr, $^{153}$Sm, $^{161}$Tb, $^{166}$Dy, $^{166}$Ho, $^{186}$Re, $^{188}$Re, $^{189}$Re, $^{212}$Pb, $^{223}$Ra, $^{225}$Ac, $^{59}$Fe, $^{75}$Se, $^{77}$As, $^{89}$Sr, $^{99}$Mo, $^{105}$Rh, $^{109}$Pd, $^{143}$Pr, $^{149}$Pm, $^{169}$Er, $^{194}$Ir, $^{198}$Au, $^{199}$Au, $^{211}$Pb, Co-58, Ga-67, Br-80m, Tc-99m, Rh-103m, Pt-109, In-111 1, Sb-119, I-125, Ho-161 , Os-189m, Ir-192, Dy-152, At-211 , Bi-212, Ra-223, Rn-219, Po-215, Bi-21 1, Ac-225, Fr-221, At-217, Bi-213, Fm-255, $^{11}$C, $^{13}$N, $^{15}$0, $^{75}$Br, $^{198}$Au, $^{224}$Ac, $^{126}$I, $^{133}$I, $^{77}$Br, $^{113m}$In, $^{95}$Ru, $^{97}$Ru, $^{103}$Ru, $^{105}$Ru, $^{107}$Hg, $^{203}$Hg, $^{121m}$Te, $^{122m}$Te, $^{125m}$Te, $^{165}$Tm, $^{167}$Tm, $^{168}$Tm, $^{197}$Pt, $^{109}$Pd, $^{105}$Rh, $^{142}$Pr, $^{143}$Pr, $^{161}$Tb, $^{166}$Ho, $^{199}$Au, $^{57}$Co, $^{58}$Co, $^{51}$Cr, $^{59}$Fe, $^{75}$Se, $^{201}$Tl, $^{225}$Ac, $^{76}$Br, $^{169}$Yb, taxane, cisplatin, metronidazole, misonidazole, desmethylmisonidazole, pimonidazole, etanidazole, nimorazole, mitomycin C, RSU 1069, SR 4233, E09, RB 6145, nicotinamide, 5-bromodeoxyuridine (BUdR), 5-iododeoxyuridine (IUdR), bromodeoxycytidine, fluorodeoxyuridine (FUdR), hydroxyurea, hematoporphyrin derivatives, Photofrin(r), benzoporphyrin derivatives, NPe6, tin etioporphyrin (SnET2), pheoborbide a, bacteriochlorophyll a, naphthalocyanines, phthalocyanines, zinc phthalocyanine, camptothecins, irinotecan, topotecan, amsacrine, daunorubicin, doxotrubicin, epipodophyllotoxins, ellipticines, epirubicin, etoposide, razoxane, teniposide, Axitinib, Bosutinib, Cediranib, Dasatinib, Erlotinib, Gefitinib, Imatinib, Lapatinib, Lestaurtinib, Nilotinib, Semaxanib, Sunitinib, Vandetanib, abrin, abrin A chain, alpha toxin, Aleurites fordii proteins, amatoxin, crotin, curcin, dianthin proteins, diptheria toxin, diphtheria A chain, nonbinding active fragments of diphtheria toxin, deoxyribonuclease (Dnase), gelonin, mitogellin, modeccin A chain, momordica charantia inhibitor, neomycin, onconase, phenomycin, Phytolaca americana proteins (PAPI, PAPII, and PAP-S), pokeweed antiviral protein, Pseudomonas endotoxin, Pseudomonas exotoxin, exotoxin A chain from Pseudomonas aeruginosa, restrictocin, ricin, ricin A chain, ribonuclease (Rnase), sapaonaria officinalis inhibitor, saporin, alpha-sarcin, Staphylcoccal enterotoxin-A, tetanus toxin, cisplatin, carboplatin, and oxaliplatin (Eloxatin, Sanofi Aventis), proteasome inhibitors, PS-341, HDAC inhibitors, vorinostat, belinostat, entinostat, mocetinostat, panobinostat, COX-2 inhibitors, substituted ureas, heat shock protein inhibitors, Geldanamycin, adrenocortical suppressants, tricothecenes, A12, 19D12, Cp751-871, H7C10, alphaIR3, ScFV/FC, EM/164, Matuzumab, Erbitux, Vectibix, mAb 806, Nimotuxumab, AVEO, AMG102, 5D5 (OA-5d5), H244G11, Ab #14 (MM 121-14), Herceptin, 1B4C3; 2D1D12, NVP-AEW541-A, BMS-536,924 (1H-benzoimidazol-2-yl)-1H-pyridin-2-one), BMS-554,417, Cycloligan, TAE226, PQ401 , Iressa, CI-1033 (PD 183805), Lapatinib (GW-572016), Tykerb, Tarceva, PKI-166, PD-158780, EKB-569, Tyrphostin AG 1478 (4-(3-Chloroanillino)-6,7-dimethoxyquinazoline), PHA665752, ARQ 197, Capecitabine, 5-

Trifluoromethyl-2'-deoxyuridine, Methotrexate sodium, Raltitrexed, Pemetrexed, Tegafur, Cytosine Arabinoside (Cytarabine), 5-azacytidine, 6-mercaptopurine (Mercaptopurine, 6-MP), Azathioprine, 6-thioguanine, Pentostatin, Fludarabine phosphate, Cladribine (2-CdA, 2-chlorodeoxyadenosine), Ribonucleotide Reductase Inhibitor, Cyclophosphamide, Neosar, ifosfamide, Thiotepa, BCNU→ 1,3-bis(2-chloroethyl)-1-nitosourea, CCNU→ 1, -(2-chloroethyl)-3-cyclohexyl-1-nitrosourea (methyl CCNU), Hexamethylmelamine, busulfan, Procarbazine HCL, Dacarbazine (DTIC), chlorambucil, melphalan, carboplatin, oxaliplatin, doxorubicin HCL, daunorubicin citrate, mitoxantrone HCL, actinomycin D, etoposide, topotecan HCL, teniposide, irinotecan HCL(CPT-ll), vincristine, vinblastine sulfate, vinorelbine tartrate, vindesine sulphate, paclitaxel, docetaxel, abraxane, ixabepilone, imatinib mesylate, sunitinib malate, sorafenib toslate, nilotinib hydrochloride monohydrate, L-asparaginase, alpha interferon, Avastin, IL-2, Aldesleukin, Proleukin, IL-12, Toremifene citrate, Fulvestrant, raloxifene HCL, anastrazole, letrozole, Fadrozole (CGS 16949A), exemestane, leuprolide acetate, Lupron, goserelin acetate, triptorelin pamoate, buserelin, Nafarelin, cetrorelix, bicalutamide, nilutamide, megestrol acetate, somatostatin Analogs, prendinsolone, dexamethasone, ketoconazole, sirolimus, temsirolimus (CCI-779), deforolimus (AP23573), and everolimus (RAD00I).

94. A pharmaceutical composition comprising the ADC of any one of claims 89-93.

95. The ADC of any one of claims 89-94 for use in treating cancer in a subject in need thereof.

96. The use of claim 95, wherein the cancer is selected from the group consisting of melanoma, endometrial cancer, lymphoma, breast cancer, ovarian cancer, renal carcinoma, gastrointestinal cancer, colon cancer, lung cancer, pancreatic cancer, and prostate cancer.

97. The use of claim 95, wherein the cancer is breast cancer.

98. The use according to any one of claims 95-97, wherein the ADC is administered to the subject by a mode selected from the group consisting of parenteral, subcutaneous, intramuscular, intravenous, intrarticular, intrabronchial, intraabdominal, intracapsular, intracartilaginous, intracavitary, intracelial, intracerebellar, intracerebroventricular, intracolic, intracervical, intragastric, intrahepatic, intramyocardial, intraosteal, intrapelvic, intrapericardiac, intraperitoneal, intrapleural, intraprostatic, intrapulmonary, intrarectal, intrarenal, intraretinal, intraspinal, intrasynovial, intrathoracic, intrauterine, intravesical, bolus, vaginal, rectal, buccal, sublingual, intranasal, and transdermal.

## CLAIMS

We claim:

1. A binding protein comprising an antigen binding domain, said binding protein capable of binding prolactin receptor (PRLR), said antigen binding domain comprising at least one CDR comprising an amino acid sequence selected from the group consisting of SEQ ID Nos:97, 98, 99, 100, 101, 102, 151 and 152.

2. The binding protein according to claim 1, wherein said at least one CDR comprises an amino acid sequence selected from the group consisting of SEQ ID Nos:40-42, 46, 47, 49-51, 56-58, 62, 63, 65-67, 71-73, 77, 79-81, 85-87, 92-94, 149 and 150.

3. The binding protein according to claim 1 or 2, wherein said binding protein comprises at least 3 CDRs.

4. The binding protein according to any one of claims 1-3, wherein said at least 3 CDRs are a heavy chain variable domain CDR set (CDR1, CDR2, and CDR3) selected from the group consisting of SEQ ID NOs: 40, 41, and 42; SEQ ID NOs: 46, 47, and 42; SEQ ID NOs: 56, 57, and 58; SEQ ID NOs: 62, 63, and 58; SEQ ID NOs: 71, 72, and 73; SEQ ID NOs: 71, 77, and 73; SEQ ID NOs: 85, 86, and 87; SEQ ID NOs: 149, 150, and 87.

5. The binding protein according any one of claims 1-3, wherein said at least 3 CDRs are a light chain variable domain CDR set (CDR1, CDR2, and CDR3) selected from the group consisting of SEQ ID NOs: 49, 50, and 51; SEQ ID NOs: 65, 66, and 67; SEQ ID NOs: 79, 80, and 81; and SEQ ID NOs: 92, 93, and 94.

6. The binding protein according to claim 5, further comprising a heavy chain variable domain CDR set selected from the group consisting of SEQ ID NOs: 40, 41, and 42; SEQ ID NOs: 46, 47, and 42; SEQ ID NOs: 56, 57, and 58; SEQ ID NOs: 62, 63, and 58; SEQ ID NOs: 71, 72, and 73; SEQ ID NOs: 71, 77, and 73; SEQ ID NOs: 85, 86, and 87; SEQ ID NOs: 149, 150, and 87.

7. The binding protein according to claim 6, wherein said at least two variable domain CDR sets are selected from a group consisting of:
(1) either of the heavy chain variable domain CDR sets SEQ ID Nos:40, 41 and 42 or SEQ ID Nos:46, 47 and 42, and the light chain variable domain CDR set SEQ ID Nos:49, 50 and 51;
(2) either of the heavy chain variable domain CDR sets SEQ ID Nos:56, 57 and 58 or SEQ ID Nos: 62, 63 and 58, and the light chain variable domain CDR set SEQ ID Nos 65, 66 and 67;
(3) either of the heavy chain variable domain CDR sets SEQ ID Nos: 71, 72 and 73 or SEQ ID Nos: 71, 77 and 73, and the light chain variable domain CDR set SEQ ID Nos: 79, 80 and 81; and
(4) either of the heavy chain variable domain CDR sets SEQ ID Nos:85, 86 and 87 or SEQ ID Nos: 149, 150 and 87, and the light chain variable domain CDR set SEQ ID Nos: 92, 93 and 94.

8. The binding protein according to any one of the preceding claims, further comprising a human acceptor framework.

9. The binding protein according to claim 8, wherein said human acceptor framework comprises an amino acid sequence selected from the group consisting of SEQ ID Nos:14-38 or 158.

10. The binding protein according to claim 8, wherein said human acceptor framework comprises at least one Framework Region amino acid substitution, wherein the amino acid sequence of the framework is at least 65% identical to the sequence of said human acceptor framework and comprises at least 70 amino acid residues identical to said human acceptor framework.

11. The binding protein according to claim 10, wherein said human acceptor framework comprises at least one Framework Region amino acid substitution at a key residue, said key residue selected from the group consisting of:
a residue adjacent to a CDR;
a glycosylation site residue;
a rare residue;

a residue capable of interacting with human PRLR;
a residue capable of interacting with a CDR;
a canonical residue;
a contact residue between heavy chain variable region and light chain variable region;
a residue within a Vernier zone; and
a residue in a region that overlaps between a Chothia-defined variable heavy chain CDR1 and a Kabat-defined first heavy chain framework.

12. The binding protein according to claim 10, wherein said key residue is selected from the group consisting of 2L, 43L, 48L, 58L, 64L, 87L, 27H, 48H, 60H, 63H, 64H, 65H, 67H, 69H, 71H, 73H, 75H, 93H.

13. The binding protein according to claim 12, wherein the binding protein is a consensus human variable domain.

14. The binding protein according to any one of the preceding claims, wherein said binding protein comprises at least one variable domain having an amino acid sequence selected from the group consisting of SEQ ID NO: 39; SEQ ID NO: 43; SEQ ID NO: 44; SEQ ID NO: 45; SEQ ID NO: 55; SEQ ID NO: 59; SEQ ID NO: 60; SEQ ID NO: 61; SEQ ID NO: 70; SEQ ID NO: 74; SEQ ID NO: 75; SEQ ID NO: 76; SEQ ID NO: 84; SEQ ID NO: 88; SEQ ID NO: 89; SEQ ID NO: 90; SEQ ID NO: 121; SEQ ID NO: 122 and SEQ ID NO: 123.

15. The binding protein according to any one of the preceding claims, wherein said binding protein comprises two variable domains, wherein said two variable domains have amino acid sequences selected from the group consisting of:

(1) one of SEQ ID NO: 39; SEQ ID NO: 43; SEQ ID NO: 44 or SEQ ID NO: 45; and one of SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO: 53 or SEQ ID NO:54;
(2) one of SEQ ID NO: 55; SEQ ID NO: 59; SEQ ID NO: 60 or SEQ ID NO: 61; and one of SEQ ID NO:64, SEQ ID NO:68 or SEQ ID NO: 69;
(3) one of SEQ ID NO: 70; SEQ ID NO: 74; SEQ ID NO: 75 or SEQ ID NO: 76; and one of SEQ ID NO:78, SEQ ID NO:82 or SEQ ID NO: 83; and

(4) one of SEQ ID NO: 84; SEQ ID NO: 88; SEQ ID NO: 89; SEQ ID NO: 90; SEQ ID NO: 121; SEQ ID NO: 122 or SEQ ID NO: 123; and one of SEQ ID NO:91, SEQ ID NO:95 or SEQ ID NO:96.

16. The binding protein according to any one of the preceding claims, wherein said binding protein comprises at least one variable domain having an amino acid sequence selected from the group consisting of SEQ ID NO: 48; SEQ ID NO: 52; SEQ ID NO: 53; SEQ ID NO: 54; SEQ ID NO: 64; SEQ ID NO: 68; SEQ ID NO: 69; SEQ ID NO: 78; SEQ ID NO: 82; SEQ ID NO: 83; SEQ ID NO: 91; SEQ ID NO: 95; and SEQ ID NO: 96.

17. The binding protein according to any one of the preceding claims, wherein said binding protein comprises a heavy chain sequence and a light chain sequence selected from the group consisting of:

(a) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(b) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(c) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(d) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(e) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(f) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(g) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(h) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(i) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(j) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(k) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(l) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(m) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(n) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(o) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(p) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(q) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(r) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(s) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(t) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(u) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(v) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(w) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(x) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(y) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(z) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(aa) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(bb) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(cc) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(dd) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(ee) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ff) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(gg) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(hh) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ii) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(jj) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(kk) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ll) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(mm) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(nn) a heavy chain having the amino acid sequence of SEQ ID NO: 153; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(oo) a heavy chain having the amino acid sequence of SEQ ID NO: 154; and a light chain having the amino acid sequence of SEQ ID NO: 139; and

(pp) a heavy chain having the amino acid sequence of SEQ ID NO: 155; and a light chain having the amino acid sequence of SEQ ID NO: 139.

18. The binding protein according to any one of the preceding claims, wherein the binding protein binds the ligand binding D1 domain of PRLR.

19. The binding protein according to any one of the preceding claims, wherein the binding protein inhibits binding of prolactin to PRLR.

20. The binding protein according to any one of the preceding claims, wherein the binding protein is capable of modulating a biological function of PRLR.

21. The binding protein according to any one of the preceding claims, wherein the binding protein is capable of neutralizing PRLR.

22. The binding protein according to any one of the preceding claims, wherein said binding protein has an on rate constant ($K_{on}$) to PRLR selected from the group consisting of: at least about $10^2 M^{-1}s^{-1}$; at least about $10^3 M^{-1}s^{-1}$; at least about $10^4 M^{-1}s^{-1}$; at least about $10^5 M^{-1}s^{-1}$; and at least about $10^6 M^{-1}s^{-1}$; as measured by surface plasmon resonance.

23. The binding protein according to any one of the preceding claims, wherein said binding protein has an off rate constant ($K_{off}$) to PRLR selected from the group consisting of: at most about $10^{-3}s^{-1}$; at most about $10^{-4}s^{-1}$; at most about $10^{-5}s^{-1}$; and at most about $10^{-6}s^{-1}$, as measured by surface plasmon resonance.

24. The binding protein according to any one of the preceding claims, wherein said binding protein has a dissociation constant ($K_D$) to PRLR selected from the group consisting of: at most about $10^{-7}$ M; at most about $10^{-8}$ M; at most about $10^{-9}$ M; at most about $10^{-10}$ M; at most about $10^{-11}$ M; at most about $10^{-12}$ M; and at most $10^{-13}$ M.

25. A binding protein capable of binding PRLR that competes with an antibody comprising a heavy chain variable domain and a light chain variable domain selected from the group consisting of:

(1) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 39; SEQ ID NO: 43; SEQ ID NO: 44 and SEQ ID NO: 45; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO: 53 and SEQ ID NO:54;

(2) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 55; SEQ ID NO: 59; SEQ ID NO: 60 and SEQ ID NO: 61; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:64, SEQ ID NO:68 and SEQ ID NO: 69;

(3) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 84; SEQ ID NO: 88; SEQ ID NO: 89; SEQ ID NO: 90; SEQ ID NO: 121; SEQ ID NO: 122; and SEQ ID NO: 123; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:91, SEQ ID NO:95 and SEQ ID NO:96;

(4) the variable heavy chain amino acid sequence set forth in SEQ ID NO:112 and the variable light chain amino acid sequence set forth in SEQ ID NO:103;

(5) the variable heavy chain amino acid sequence set forth in SEQ ID NO:113 and the variable light chain amino acid sequence set forth in SEQ ID NO:104;

(6) the variable heavy chain amino acid sequence set forth in SEQ ID NO:114 and the variable light chain amino acid sequence set forth in SEQ ID NO:105;

(7) the variable heavy chain amino acid sequence set forth in SEQ ID NO:116 and the variable light chain amino acid sequence set forth in SEQ ID NO:107;

(8) the variable heavy chain amino acid sequence set forth in SEQ ID NO:117 and the variable light chain amino acid sequence set forth in SEQ ID NO:108;

(9) the variable heavy chain amino acid sequence set forth in SEQ ID NO:118 and the variable light chain amino acid sequence set forth in SEQ ID NO:109;

(10) the variable heavy chain amino acid sequence set forth in SEQ ID NO:119 and the variable light chain amino acid sequence set forth in SEQ ID NO:110; and

(11) the variable heavy chain amino acid sequence set forth in SEQ ID NO:120 and the variable light chain amino acid sequence set forth in SEQ ID NO:111;

wherein the binding protein is a monoclonal antibody.

26. The binding protein of claim 25, wherein the binding protein competes with an antibody comprising a heavy chain variable domain and a light chain variable domain selected from the group consisting of:

(1) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 39; SEQ ID NO: 43; SEQ ID NO: 44 and SEQ ID NO: 45; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO: 53 and SEQ ID NO:54;

(2) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 55; SEQ ID NO: 59; SEQ ID NO: 60 and SEQ ID NO: 61; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:64, SEQ ID NO:68 and SEQ ID NO: 69;

(3) a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 84; SEQ ID NO: 88; SEQ ID NO: 89; SEQ ID NO: 90; SEQ ID NO: 121; SEQ ID NO: 122; and SEQ ID NO: 123; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:91, SEQ ID NO:95 and SEQ ID NO:96;

(4) the variable heavy chain amino acid sequence set forth in SEQ ID NO:112 and the variable light chain amino acid sequence set forth in SEQ ID NO:103;

(5) the variable heavy chain amino acid sequence set forth in SEQ ID NO:113 and the variable light chain amino acid sequence set forth in SEQ ID NO:104;

(6) the variable heavy chain amino acid sequence set forth in SEQ ID NO:114 and the variable light chain amino acid sequence set forth in SEQ ID NO:105; and

(7) the variable heavy chain amino acid sequence set forth in SEQ ID NO:120 and the variable light chain amino acid sequence set forth in SEQ ID NO:111;

wherein the binding protein is a monoclonal antibody.

27. The binding protein of claim 25, wherein the binding protein competes with an antibody comprising the variable heavy chain amino acid sequence set forth in SEQ ID NO:119 and the variable light chain amino acid sequence set forth in SEQ ID NO:110.

28. The binding protein of claim 25, wherein the binding protein competes with an antibody comprising a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 39; SEQ ID NO: 43; SEQ ID NO: 44 and SEQ ID NO: 45; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO: 53 and SEQ ID NO:54.

29. The binding protein of claim 25, wherein the binding protein competes with an antibody comprising a variable heavy chain having an amino acid sequence selected from the group consisting of SEQ ID NO: 84; SEQ ID NO: 88; SEQ ID NO: 89; SEQ

ID NO: 90; SEQ ID NO: 121; SEQ ID NO: 122; and SEQ ID NO: 123; and a variable light chain having an amino acid sequence selected from the group consisting of SEQ ID NO:91, SEQ ID NO:95 and SEQ ID NO:96.

30. A binding protein capable of binding PRLR that competes with an antibody comprising a heavy chain sequence and a light chain sequence selected from the group consisting of:

(a) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(b) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(c) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(d) a heavy chain having the amino acid sequence of SEQ ID NO: 124; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(e) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(f) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(g) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(h) a heavy chain having the amino acid sequence of SEQ ID NO: 129; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(i) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 125;

(j) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 126;

(k) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 127;

(l) a heavy chain having the amino acid sequence of SEQ ID NO: 130; and a light chain having the amino acid sequence of SEQ ID NO: 128;

(m) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(n) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(o) a heavy chain having the amino acid sequence of SEQ ID NO: 131; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(p) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(q) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(r) a heavy chain having the amino acid sequence of SEQ ID NO: 135; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(s) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 132;

(t) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 133;

(u) a heavy chain having the amino acid sequence of SEQ ID NO: 136; and a light chain having the amino acid sequence of SEQ ID NO: 134;

(v) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(w) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(x) a heavy chain having the amino acid sequence of SEQ ID NO: 137; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(y) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(z) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(aa) a heavy chain having the amino acid sequence of SEQ ID NO: 141; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(bb) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 138;

(cc) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(dd) a heavy chain having the amino acid sequence of SEQ ID NO: 142; and a light chain having the amino acid sequence of SEQ ID NO: 140;

(ee) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ff) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(gg) a heavy chain having the amino acid sequence of SEQ ID NO: 143; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(hh) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ii) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(jj) a heavy chain having the amino acid sequence of SEQ ID NO: 147; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(kk) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 144;

(ll) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 145;

(mm) a heavy chain having the amino acid sequence of SEQ ID NO: 148; and a light chain having the amino acid sequence of SEQ ID NO: 146;

(nn) a heavy chain having the amino acid sequence of SEQ ID NO: 153; and a light chain having the amino acid sequence of SEQ ID NO: 139;

(oo) a heavy chain having the amino acid sequence of SEQ ID NO: 154; and a light chain having the amino acid sequence of SEQ ID NO: 139; and

(pp) a heavy chain having the amino acid sequence of SEQ ID NO: 155; and a light chain having the amino acid sequence of SEQ ID NO: 139;

wherein the binding protein is a monoclonal antibody.

31. A binding protein capable of binding PRLR that binds to an epitope in PRLR comprising three, four, five, six, seven, eight, nine or all of the amino acid residues E8, F10, C12, R25, E43, G44, I76, D91, E92, L93, Y94, V95, D96, Y99, I100, E145, F160, K185, D187, H188, Y190 and W191 of SEQ ID NO:2; wherein the binding protein is a monoclonal antibody.

32. The binding protein of claim 31, wherein the epitope comprises at least five of the amino acid residues.

33. The binding protein of claim 31, wherein the epitope comprises all of amino acid residues E8, F10, C12, R25, E43, G44, I76, D91, E92, L93, Y94, V95, D96, Y99, I100, E145, F160, K185, D187, H188, Y190 and W191 of SEQ ID NO:2.

34. The binding protein of any one of claims 31-33, wherein the binding protein is an antibody, or antigen binding portion thereof, selected from the group consisting of Ab1, Ab6, chAb6, and Ab14-Ab25.

35. A binding protein capable of binding PRLR that binds to an epitope in PRLR comprising three, four, five, six, seven, eight, nine or all of the amino acid residues E8, I9, F10, K11, C12, R25, E43, G44, W72, T74, I76, D91, E92, L93, Y94, V95, D96, T98, Y99, I100, W139, L143, E145, F160, K185, D187, H188, Y190 and W191 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

36. The binding protein of claim 35, wherein the epitope comprises at least five of the amino acid residues.

37. The binding protein of claim 35, wherein the epitope comprises all of amino acid residues E8, I9, F10, K11, C12, R25, E43, G44, W72, T74, I76, D91, E92, L93, Y94, V95, D96, T98, Y99, I100, W139, L143, E145, F160, K185, D187, H188, Y190 and W191 of SEQ ID NO:2.

38. The binding protein of any one of claims 35-37, wherein the binding protein is an antibody, or antigen binding portion thereof, selected from the group consisting of Ab4, Ab7, chAb7, Ab35-Ab43 and Ab53-Ab55.

39. A binding protein capable of binding PRLR that binds to an epitope in PRLR comprising 13, 14, 15, 16, 17, 18, 19, 20, 21 or all of the amino acid residues R25, T141, L143, E145, R147, E155, W156, E157, I158, H159, F160, A161, G162, Q163, Q164, F167, S171, R183, K185, D187, H188, W191 and W194 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

40. The binding protein of claim 39, wherein the epitope comprises at least 15 of the amino acid residues.

41. The binding protein of claim 39, wherein the epitope comprises all of amino acid residues R25, T141, L143, E145, R147, E155, W156, E157, I158, H159, F160, A161, G162, Q163, Q164, F167, S171, R183, K185, D187, H188, W191, and W194 of SEQ ID NO:2.

42. The binding protein of any one of claims 39-41, wherein the binding protein is an antibody, or antigen binding portion thereof, selected from the group consisting of Ab3, Ab8, chAb8 and Ab44-Ab52.

43. A binding protein capable of binding PRLR that binds to an epitope in PRLR comprising at least one, two, three, four or all of the amino acid residues R25, K185, D187, H188 or W191 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

44. The binding protein of claim 43, wherein the epitope comprises all of amino acid residues R25, K185, D187, H188 or W191 of SEQ ID NO:2.

45. A binding protein capable of binding PRLR that binds to an epitope in PRLR comprising amino acids 91-96 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

46. The binding protein of claim 45, wherein the binding protein comprises an antibody, or antigen binding portion thereof, selected from the group consisting of Ab1, Ab4, Ab6, Ab7, chAb6, chAb7, Ab14-Ab25, Ab35-Ab43 and Ab53-Ab55.

47. A binding protein capable of binding PRLR that binds to an epitope having residues within at least amino acids 8-100, 185-191, 8-143, or 183-194 of SEQ ID NO:2, wherein the binding protein is a monoclonal antibody.

48. The binding protein of claim 44 or 47, wherein the binding protein is an antibody, or antigen binding portion thereof, selected from the group consisting of Ab1, Ab3, Ab4, Ab6-Ab8, chAb6, chAb7, chAb8, Ab14-Ab25 and Ab35-Ab55.

49. A binding protein capable of binding PRLR and having the same epitopic specificity as an antibody, or antigen-binding portion thereof, selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, chAb5, Ab6, chAb6, Ab7, chAb7, Ab8, chAb8, Ab9, chAb9, Ab10, chAb10, Ab11, chAb11, Ab12, chAb12, Ab13, chAb13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23, Ab24, Ab25, Ab26, Ab27, Ab28, Ab29, Ab30, Ab31, Ab32, Ab33, Ab34, Ab35, Ab36, Ab37, Ab38, Ab39, Ab40, Ab41, Ab42, Ab43, Ab44, Ab45, Ab46, Ab47, Ab48, Ab49, Ab50, Ab51, Ab52, Ab53, Ab54 and Ab55, wherein the binding protein is a monoclonal antibody.

50. The binding protein of any one of claims 25-49, wherein the binding protein is capable of modulating a biological function of PRLR.

51. The binding protein of any one of claims 25-50, wherein the binding protein binds the ligand binding D1 domain of PRLR.

52. The binding protein of any one of claims 25-51, wherein the binding protein binds an epitope of PRLR which does not inhibit dimerization of PRLR.

53. The binding protein of any one of claims 25-52, wherein the binding protein does not bind the D2 domain of PRLR.

54. The binding protein of any one of claims 25-53, wherein the binding protein inhibits binding of prolactin to PRLR.

55. The binding protein of any one of claims 25-54, wherein the binding protein does not compete with antibody LFA102 for binding of PRLR.

56. The binding protein of any one of claims 1-24, wherein the binding protein is an antibody.

57. An antibody construct comprising the binding protein of any one of claims 1-56, said antibody construct further comprising a linker polypeptide or an immunoglobulin constant domain.

58. The antibody construct according to claim 57, wherein said binding protein is selected from the group consisting of:

an immunoglobulin molecule,
a monoclonal antibody,
a chimeric antibody,
a CDR-grafted antibody,
a humanized antibody,
a Fab,
a Fab',
a F(ab')2,
a Fv,
a disulfide linked Fv,
a scFv,
a single domain antibody,
a diabody,
a multispecific antibody,
a dual specific antibody, and
a bispecific antibody.

59. The antibody construct according to any one of claims 57-58, wherein said binding protein comprises a heavy chain immunoglobulin constant domain selected from the group consisting of:

a human IgM constant domain,
a human IgG1 constant domain,
a human IgG2 constant domain,
a human IgG3 constant domain,
a human IgG4 constant domain,
a human IgE constant domain,
and
a human IgA constant domain.

60. The antibody construct according to any one of claims 57-59, comprising an immunoglobulin constant domain having an amino acid sequence selected from the group consisting of SEQ ID Nos:10-13.

61. An antibody conjugate comprising the antibody construct of any one of claims 57-60, said antibody conjugate further comprising an agent selected from the group consisting of: an immunoadhension molecule, an imaging agent, a therapeutic agent, and a cytotoxic agent.

62. The antibody conjugate according to claim 61, wherein said agent is an imaging agent selected from the group consisting of a radiolabel, an enzyme, a fluorescent label, a luminescent label, a bioluminescent label, a magnetic label, and biotin.

63. The antibody conjugate according to claim 61, wherein said imaging agent is a radiolabel selected from the group consisting of: $^{3}H$, $^{14}C$, $^{35}S$, $^{90}Y$, $^{99}Tc$, $^{111}In$, $^{125}I$, $^{131}I$, $^{177}Lu$, $^{166}Ho$, and $^{153}Sm$.

64. The antibody conjugate according to claim 61, wherein said agent is a therapeutic or cytotoxic agent selected from the group consisting of: an anti-metabolite, an alkylating agent, an antibiotic, a growth factor, a cytokine, an anti-angiogenic agent, an anti-mitotic agent, an anthracycline, toxin, and an apoptotic agent.

65. The antibody conjugate according to claim 64, wherein the anti-mitotic agent is selected from the group consisting of a dolastatin, an auristatin, a maytansinoid, a plant alkaloid, a taxane, and a vinca alkaloid.

66. The antibody construct according to any one of claims 57-65, wherein said binding protein possesses a human glycosylation pattern.

67. The binding protein according to any one of claims 1-56, wherein said binding protein is a crystallized binding protein.

68. The antibody construct according to any one of claims 57-66, wherein said antibody construct is a crystallized antibody construct.

69. The antibody construct according to claim 68, wherein said crystallized antibody construct is a carrier-free pharmaceutical controlled release crystallized antibody construct.

70. The antibody construct according to claim 68 or 69, wherein said antibody construct has a greater half life *in vivo* than the soluble counterpart of said antibody construct.

71. The antibody construct according to any one of claims 68-70, wherein said antibody construct retains biological activity.

72. An isolated nucleic acid encoding a binding protein amino acid sequence of any one of claims 1-56.

73. An isolated nucleic acid encoding an antibody construct amino acid sequence of any one of claims 57-66.

74. A vector comprising an isolated nucleic acid according to claim 73.

75. The vector of claim 74 wherein said vector is selected from the group consisting of pcDNA, pTT, pTT3, pEFBOS, pBV, pJV, and pBJ.

76. A host cell comprising a vector according to claim 74 or 75.

77. The host cell according to claim 76, wherein said host cell is a prokaryotic cell or a eukaryotic cell .

78. The host cell according to claim 77, wherein said prokaryotic host cell is E.Coli.

79. The host cell according to claim 77, wherein said eukaryotic cell is selected from the group consisting of a protist cell, an animal cell, a plant cell and a fungal cell.

80. The host cell according to claim 79, wherein said animal cell is selected from the group consisting of a mammalian cell, an avian cell, and an insect cell.

81. The host cell according to claim 76, wherein said host cell is selected from the group consisting of a CHO cell, a COS cell, a yeast cell, and an insect Sf9 cell,.

82. The host cell according to claim 81, wherein said yeast cell is *Saccharomyces cerevisiae*.

83. A method of producing a protein capable of binding PRLR, comprising culturing a host cell of any one of claims 76-82 in culture medium under conditions sufficient to produce a binding protein capable of binding PRLR.

84. A protein produced according to the method of claim 83.

85. A composition for the release of a binding protein said composition comprising:
(a) a formulation, wherein said formulation comprises a crystallized binding protein, according to claim 67, and an ingredient; and
(b) at least one polymeric carrier.

86. The composition according to claim 85, wherein said polymeric carrier is a polymer selected from one or more of the group consisting of: poly (acrylic acid), poly (cyanoacrylates), poly (amino acids), poly (anhydrides), poly (depsipeptide), poly (esters), poly (lactic acid), poly (lactic-co-glycolic acid) or PLGA, poly (b-hydroxybutryate), poly (caprolactone), poly (dioxanone); poly (ethylene glycol), poly ((hydroxypropyl) methacrylamide, poly [(organo) phosphazene], poly (ortho esters), poly (vinyl alcohol), poly (vinylpyrrolidone), maleic anhydride- alkyl vinyl ether copolymers, pluronic polyols, albumin, alginate, cellulose and cellulose derivatives, collagen, fibrin, gelatin, hyaluronic acid, oligosaccharides, glycaminoglycans, sulfated polysaccharides, blends and copolymers thereof.

87. The composition according to claim 85 or 86, wherein said ingredient is selected from the group consisting of albumin, sucrose, trehalose, lactitol, gelatin, hydroxypropyl-β-cyclodextrin, methoxypolyethylene glycol and polyethylene glycol.

88. A method for treating a mammal comprising the step of administering to the mammal an effective amount of the composition according to any one of claims 85-87.

89. A pharmaceutical composition comprising the binding protein of any one of claims 1-56, and a pharmaceutically acceptable carrier.

90. The pharmaceutical composition of claim 89 wherein said pharmaceutically acceptable carrier functions as adjuvant useful to increase the absorption, or dispersion of said binding protein.

91. The pharmaceutical composition of claim 90 wherein said adjuvant is hyaluronidase.

92. The pharmaceutical composition of any one of claims 89-91 further comprising at least one additional therapeutic agent for treating a disorder in which PRLR activity is detrimental.

93. The pharmaceutical composition of claim 92, wherein said additional agent is selected from the group consisting of: therapeutic agent, imaging agent, cytotoxic agent, angiogenesis inhibitors; kinase inhibitors; co-stimulation molecule blockers; adhesion molecule blockers; anti-cytokine antibody or functional fragment thereof; methotrexate; cyclosporin; rapamycin; FK506; detectable label or reporter; a TNF antagonist; an anti-rheumatic; a muscle relaxant, a narcotic, a non-steroid anti-inflammatory drug (NSAID), an analgesic, an anesthetic, a sedative, a local anesthetic, a neuromuscular blocker, an antimicrobial, an antipsoriatic, a corticosteriod, an anabolic steroid, an erythropoietin, an immunization, an immunoglobulin, an immunosuppressive, a growth hormone, a hormone replacement drug, a radiopharmaceutical, an antidepressant, an antipsychotic, a stimulant, an asthma medication, a beta agonist, an inhaled steroid, an oral steroid, an epinephrine or analog, a cytokine, and a cytokine antagonist.

94. Use of the binding protein of any one of claims 1-56 in the manufacture of a medicament for reducing human PRLR, wherein human PRLR is to be contacted with the medicament such that human PRLR activity is reduced.

95. Use of the binding protein of any one of claims 1-56 in the manufacture of a medicament for reducing human PRLR activity in a human subject suffering from a disorder in which PRLR activity is detrimental, wherein the medicament is to be administered to the human subject such that human PRLR activity in the human subject is reduced.

96. Use of the subject the binding protein of any one of claims 1-56 in the manufacture of a medicament for treating a subject for a disease or a disorder in which PRLR activity is detrimental, wherein the medicament is to be administered to the subject, such that treatment is achieved.

97. The use of claim 96, wherein the disorder is a cancer.

98. The use of claim 97, wherein the cancer is selected from the group consisting of melanoma, endometrial cancer, lymphoma, breast cancer, ovarian cancer, renal carcinoma, gastrointestinal cancer, colon cancer, lung cancer, pancreatic cancer, and prostate cancer.

99. The use of claim 97, wherein the cancer is breast cancer.

100. The use according to any one of claims 96-99, wherein said medicament is to be administered to the subject by a mode selected from the group consisting of parenteral, subcutaneous, intramuscular, intravenous, intrarticular, intrabronchial, intraabdominal, intracapsular, intracartilaginous, intracavitary, intracelial, intracerebellar, intracerebroventricular, intracolic, intracervical, intragastric, intrahepatic, intramyocardial, intraosteal, intrapelvic, intrapericardiac, intraperitoneal, intrapleural, intraprostatic, intrapulmonary, intrarectal, intrarenal, intraretinal, intraspinal, intrasynovial, intrathoracic, intrauterine, intravesical, bolus, vaginal, rectal, buccal, sublingual, intranasal, and transdermal.

101. An anti-PRLR antibody, or antigen binding fragment thereof, that specifically competes with an anti-PRLR binding protein of any one of claims 1-56, wherein said competition can be detected in a competitive binding assay using said antibody, the human PRLR polypeptide, and the anti-PRLR binding protein, wherein the binding protein is a monoclonal antibody.

102. An anti-PRLR Antibody Drug Conjugate (ADC) comprising an anti-PRLR antibody, or antigen-binding fragment thereof, and at least one drug, wherein the antibody, or antigen-binding portion thereof, comprises at least 3 CDRs.

103. The anti-PRLR Antibody Drug Conjugate (ADC) of claim 102, wherein the antibody, or antigen-binding portion thereof, comprises at least 3 CDRs selected from a heavy chain variable domain CDR set (CDR1, CDR2, and CDR3) consisting of SEQ ID NOs: 40, 41, and 42; SEQ ID NOs: 46, 47, and 42; SEQ ID NOs: 56, 57, and 58; SEQ ID NOs: 62, 63, and 58; SEQ ID NOs: 71, 72, and 73; SEQ ID NOs: 71, 77, and 73; SEQ ID NOs: 85, 86, and 87; SEQ ID NOs: 149, 150, and 87.

104. The anti-PRLR Antibody Drug Conjugate (ADC) of claim 102 or 103, wherein the antibody, or antigen-binding portion thereof, comprises at least 3 CDRs selected from a light chain variable domain CDR set (CDR1, CDR2, and CDR3) consisting of SEQ ID NOs: 49, 50, and 51; SEQ ID NOs: 65, 66, and 67; SEQ ID NOs: 79, 80, and 81; and SEQ ID NOs: 92, 93, and 94.

105. The ADC of any one of claims 102-104, wherein the drug is selected from the group consisting of a mitotic inhibitor, an antitumor antibiotic, an immunomodulating agent, a vector for gene therapy, an alkylating agent, an antiangiogenic agent, an antimetabolite, a boron-containing agent, a chemoprotective agent, a hormone, an antihormone agent, a corticosteroid, a photoactive therapeutic agent, an oligonucleotide, a radionuclide agent, a topoisomerase inhibitor, a tyrosine kinase inhibitor, and a radiosensitizer.

106. The ADC of any one of claims 102-105, wherein the drug is selected from the group consisting of Ixempra, dolastatin 10, dolatstin 15, auristatin E, auristatin PE, monomethyl auristatin D (MMAD or auristatin D derivative), monomethyl auristatin E (MMAE or auristatin E derivative), monomethyl auristatin F (MMAF or auristatin F derivative), auristatin F phenylenediamine (AFP), auristatin EB (AEB), auristatin EFP (AEFP), 5-benzoylvaleric acid-AE ester (AEVB), methotrexate, daunorubicin, vincristine, maytansine, maytansinol, C-3 esters of maytansinol, ansamitocin P1, ansamitocin P2, ansamitocin P3, ansamitocin P4, docetaxel, paclitaxel, nanoparticlae paclitaxel, vindesine sulfate, vincristine, vinblastine, vinorelbine, actinomycines, pyrrolo[2,1-c][1,4]benzodiazepines, pyrrolobenzodiazepine (PBD) dimer,actinomycin D, anthramycin, chicamycin A, DC-18, mazethramycin, neothramycin A, neothramycin B, porothramycin, prothracarcin B, SG2285, sibanomicin, sibiromycin, tomaymycin, anthracyclines, daunorubicin, doxorubicin, epirubicin, idarubicin,

calicheamicins, $\gamma_1^I$, $\alpha_2^I$, $\alpha_3^I$, N-acetyl-$\gamma_1^I$, PSAG, $\theta^I_1$, duocarmycins, adozelesin, bizelesin, and carzelesin, bleomycin, mitomycin, plicamycin, bacillus calmette-guerin (BCG), levamisole, cancer vaccines, recombinant bivalent human papillomavirus (HPV) vaccine types 16 and 18 vaccine, recombinant quadrivalent human papillomavirus (HPV) types 6, 11, 16, and 18 vaccine, sipuleucel-T, cytokines, parathyroid hormone; thyroxine; insulin; proinsulin; relaxin; prorelaxin; glycoprotein hormones such as follicle stimulating hormone (FSH), thyroid stimulating hormone (TSH), and luteinizing hormone (LH), hepatic growth factor; fibroblast growth factor, prolactin, placental lactogen, tumor necrosis factor, mullerian-inhibiting substance, mouse gonadotropin-associated peptide, inhibin, activin, vascular endothelial growth factor, integrin, thrombopoietin (TPO), nerve growth factors such as NGF, platelet-growth factor, transforming growth factors (TGFs), insulin-like growth factor-I and -II, erythropoietin (EPO), osteoinductive factors, interferons such as interferon $\alpha$, $\beta$,nd $\gamma$, colony stimulating factors (CSFs), granulocyte-macrophage-C-SF (GM-CSF), and granulocyte-CSF (G-CSF), interleukins (ILs) such as IL-1, IL-1$\alpha$, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-11, IL-12, tumor necrosis factor and other polypeptide factors including LIF and kit ligand (KL), colony-stimulating factors, erythropoietin (epoetin), filgrastim, sargramostim, promegapoietin, Oprelvekin, immunomodulating gene therapeutics, nucleic acid encoding a functional, therapeutic gene that is used to replace a mutated or otherwise dysfuntional (*e.g.* truncated) gene associated with cancer, nucleic acid that encodes for or otherwise provides for the production of a therapeutic protein to treat cancer, alkyl sulfonates, busulfan, nitrogen mustards, chlorambucil, cyclophosphamide, estramustine, ifosfamide, mechlorethamine, and melphalan, nitrosoureas, carmustine, fotemustine, lomustine, nimustine, streptozocin, triazines and hydrazines, dacarbazine, procarbazine, temozolomide, ethylenimimes, thiopeta, diaziquone, mitomycin C, methylamine derivatives, epoxides, altretamine, dianhydrogalactitol, dibromodulcitol, angiostatin, ABX EFG, C1-1033, PKI-166, EGF vaccine, EKB-569, GW2016, ICR-62, EMD 55900, CP358, PD153035, AG1478, IMC-C225, OSI-774, Erlotinib, angiostatin, arrestin, endostatin, BAY 12-9566 and w/fluorouracil or doxorubicin, canstatin, carboxyamidotriozole and with paclitaxel, EMD121974, S-24, vitaxin, dimethylxanthenone acetic acid, IM862, Interleukin-12, Interleukin-2, NM-3, HuMV833, PTK787, RhuMab, angiozyme, IMC-1C11, Neovastat, marimstat, prinomastat, BMS-275291,COL-3, MM1270,

SU101, SU6668, SU11248, SU5416, with paclitaxel, with gemcitabine and cisplatin, and with irinotecan and cisplatin and with radiation, tecogalan, temozolomide and PEG interferon α2b, tetrathiomolybdate, TNP-470, thalidomide, CC-5013 and with taxotere, tumstatin, 2-methoxyestradiol, VEGF trap, mTOR inhibitors (deforolimus, everolimus, and temsirolimus), tyrosine kinase inhibitors (*e.g.*, imatinib, gefitinib, dasatinib, sunitinib, nilotinib, lapatinib, sorafenib, phosphoinositide 3-kinases (PI3K), folic acid antagonists, methotrexate, 4-amino-folic acid, lometrexol, pemetrexed, trimetrexate, a pyrimidine antagonists, azacitidine, capecitabine, cytarabine, decitabine, 5-fluorouracil, 5-fluoro-2'-deoxyuridine 5'-phosphate, 5-fluorouridine triphosphate, gemcitabine, foxuridine, a purine antagonist azathioprine, cladribine, mercaptopurine, fludarabine, pentostatin, 6-thioguanine, adenosine deaminase inhibitors, Cladribine, Fludarabine, Nelarabine, Pentostatin, borophycin, bortezomib, chemoprotective agents, amifostine, dexrazoxane, mesna, androgens, estrogens, medroxyprogesterone acetate, progestins, aminoglutethimide, anastrozole, bicalutamide, chlorotrianises, cyproterone acetate, degarelix, exemestane, flutamide, fulvestrant, goserelin, letrozole, leuprolide, lupron, medroxyprogesterone acetate, Megestrol acetate, tamoxifen, triptorelin, asparaginase, dacarbazine, hydroxyurea, levamisole, mitotane, procarbazane, tretinoin, glucocorticoids, prednisone, chromagens, dyes, antisense oligonucleotides whether naturally occurring or synthesized using standard and/or non-standard nucleotides (including RNA interference (RNAi)), double-stranded RNA (dsRNA), small interferring RNA (siRNA), microRNA (miRNA), aptamers, CpG oligonucleotides, ribozymes, angiozyme, $^{111}$In, $^{177}$Lu, $^{212}$Bi, $^{213}$Bi, $^{211}$At, $^{62}$Cu, $^{64}$Cu, $^{67}$Cu, $^{90}$Y, $^{125}$I, $^{131}$I, $^{32}$P, $^{33}$P, $^{47}$Sc, $^{111}$Ag, $^{67}$Ga, $^{142}$Pr, $^{153}$Sm, $^{161}$Tb, $^{166}$Dy, $^{166}$Ho, $^{186}$Re, $^{188}$Re, $^{189}$Re, $^{212}$Pb, $^{223}$Ra, $^{225}$Ac, $^{59}$Fe, $^{75}$Se, $^{77}$As, $^{89}$Sr, $^{99}$Mo, $^{105}$Rh, $^{109}$Pd, $^{143}$Pr, $^{149}$Pm, $^{169}$Er, $^{194}$Ir, $^{198}$Au, $^{199}$Au, $^{211}$Pb, Co-58, Ga-67, Br-80m, Tc-99m, Rh-103m, Pt-109, In-111 1, Sb-119, I-125, Ho-161 , Os-189m, Ir-192, Dy-152, At-211 , Bi-212, Ra-223, Rn-219, Po-215, Bi-21 1, Ac-225, Fr-221, At-217, Bi-213, Fm-255, $^{11}$C, $^{13}$N, $^{15}$0, $^{75}$Br, $^{198}$Au, $^{224}$Ac, $^{126}$I, $^{133}$I, $^{77}$Br, $^{113m}$In, $^{95}$Ru, $^{97}$Ru, $^{103}$Ru, $^{105}$Ru, $^{107}$Hg, $^{203}$Hg, $^{121m}$Te, $^{122m}$Te, $^{125m}$Te, $^{165}$Tm, $^{167}$Tm, $^{168}$Tm, $^{197}$Pt, $^{109}$Pd, $^{105}$Rh, $^{142}$Pr, $^{143}$Pr, $^{161}$Tb, $^{166}$Ho, $^{199}$Au, $^{57}$Co, $^{58}$Co, $^{51}$Cr, $^{59}$Fe, $^{75}$Se, $^{201}$Tl, $^{225}$Ac, $^{76}$Br, $^{169}$Yb, taxane, cisplatin, metronidazole, misonidazole, desmethylmisonidazole, pimonidazole, etanidazole, nimorazole, mitomycin C, RSU 1069, SR 4233, E09, RB 6145, nicotinamide, 5-bromodeoxyuridine (BUdR), 5-iododeoxyuridine (IUdR), bromodeoxycytidine, fluorodeoxyuridine (FUdR),

hydroxyurea, hematoporphyrin derivatives, Photofrin(r), benzoporphyrin derivatives, NPe6, tin etioporphyrin (SnET2), pheoborbide a, bacteriochlorophyll a, naphthalocyanines, phthalocyanines, zinc phthalocyanine, camptothecins, irinotecan, topotecan, amsacrine, daunorubicin, doxotrubicin, epipodophyllotoxins, ellipticines, epirubicin, etoposide, razoxane, teniposide, Axitinib, Bosutinib, Cediranib, Dasatinib, Erlotinib, Gefitinib, Imatinib, Lapatinib, Lestaurtinib, Nilotinib, Semaxanib, Sunitinib, Vandetanib, abrin, abrin A chain, alpha toxin, Aleurites fordii proteins, amatoxin, crotin, curcin, dianthin proteins, diptheria toxin, diphtheria A chain, nonbinding active fragments of diphtheria toxin, deoxyribonuclease (Dnase), gelonin, mitogellin, modeccin A chain, momordica charantia inhibitor, neomycin, onconase, phenomycin, Phytolaca americana proteins (PAPI, PAPII, and PAP-S), pokeweed antiviral protein, Pseudomonas endotoxin, Pseudomonas exotoxin, exotoxin A chain from Pseudomonas aeruginosa, restrictocin, ricin, ricin A chain, ribonuclease (Rnase), sapaonaria officinalis inhibitor, saporin, alpha-sarcin, Staphylcoccal enterotoxin-A, tetanus toxin, cisplatin, carboplatin, and oxaliplatin (Eloxatin, Sanofi Aventis), proteasome inhibitors, PS-341, HDAC inhibitors, vorinostat, belinostat, entinostat, mocetinostat, panobinostat, COX-2 inhibitors, substituted ureas, heat shock protein inhibitors, Geldanamycin, adrenocortical suppressants, tricothecenes, A12, 19D12, Cp751-871, H7C10, alphaIR3, ScFV/FC, EM/164, Matuzumab, Erbitux, Vectibix, mAb 806, Nimotuxumab, AVEO, AMG102, 5D5 (OA-5d5), H244G11, Ab #14 (MM 121-14), Herceptin, 1B4C3; 2D1D12, NVP-AEW541-A, BMS-536,924 (1H-benzoimidazol-2-yl)-1H-pyridin-2-one), BMS-554,417, Cycloligan, TAE226, PQ401 , Iressa, CI-1033 (PD 183805), Lapatinib (GW-572016), Tykerb, Tarceva, PKI-166, PD-158780, EKB-569, Tyrphostin AG 1478 (4-(3-Chloroanillino)-6,7-dimethoxyquinazoline), PHA665752, ARQ 197, Capecitabine, 5-Trifluoromethyl-2'-deoxyuridine, Methotrexate sodium, Raltitrexed, Pemetrexed, Tegafur, Cytosine Arabinoside (Cytarabine), 5-azacytidine, 6-mercaptopurine (Mercaptopurine, 6-MP), Azathioprine, 6-thioguanine, Pentostatin, Fludarabine phosphate, Cladribine (2-CdA, 2-chlorodeoxyadenosine), Ribonucleotide Reductase Inhibitor, Cyclophosphamide, Neosar, ifosfamide, Thiotepa, BCNU→ 1,3-bis(2-chloroethyl)-1-nitosourea, CCNU→ 1, -(2-chloroethyl)-3-cyclohexyl-1-nitrosourea (methyl CCNU), Hexamethylmelamine, busulfan, Procarbazine HCL, Dacarbazine (DTIC), chlorambucil, melphalan, carboplatin, oxaliplatin, doxorubicin HCL, daunorubicin citrate, mitoxantrone HCL, actinomycin D, etoposide, topotecan HCL, teniposide,

irinotecan HCL(CPT-ll), vincristine, vinblastine sulfate, vinorelbine tartrate, vindesine sulphate, pac1itaxel, docetaxel, abraxane, ixabepilone, imatinib mesylate, sunitinib malate, sorafenib toslate, nilotinib hydrochloride monohydrate, L-asparaginase, alpha interferon, Avastin, IL-2, Aldesleukin, Proleukin, IL-12, Toremifene citrate, Fulvestrant, raloxifene HCL, anastrazole, letrozole, Fadrozole (CGS 16949A), exemestane, leuprolide acetate, Lupron, goserelin acetate, triptorelin pamoate, buserelin, Nafarelin, cetrorelix, bicalutamide, nilutamide, megestrol acetate, somatostatin Analogs, prendinsolone, dexamethasone, ketoconazole, sirolimus, temsirolimus (CCI-779), deforolimus (AP23573), and everolimus (RAD00I).

107. A pharmaceutical composition comprising the ADC of any one of claims 102-106.

108. Use of the ADC of any one of claims 102-107 in the manufacture of a medicament for treating cancer in a subject in need thereof, wherein the medicament is to be administered, such that the subject is treated.

109. The use of claim 108, wherein the cancer is selected from the group consisting of melanoma, endometrial cancer, lymphoma, breast cancer, ovarian cancer, renal carcinoma, gastrointestinal cancer, colon cancer, lung cancer, pancreatic cancer, and prostate cancer.

110. The use of claim 108, wherein the cancer is breast cancer.

111. The use according to any one of claims 108-110, wherein the medicament is administered to the subject by a mode selected from the group consisting of parenteral, subcutaneous, intramuscular, intravenous, intrarticular, intrabronchial, intraabdominal, intracapsular, intracartilaginous, intracavitary, intracelial, intracerebellar, intracerebroventricular, intracolic, intracervical, intragastric, intrahepatic, intramyocardial, intraosteal, intrapelvic, intrapericardiac, intraperitoneal, intrapleural, intraprostatic, intrapulmonary, intrarectal, intrarenal, intraretinal, intraspinal, intrasynovial, intrathoracic, intrauterine, intravesical, bolus, vaginal, rectal, buccal, sublingual, intranasal, and transdermal.