CLAIMS

What is claimed is:

1. An anti-human PCSK9 antibody or antibody fragment that competes with and/or specifically binds to the same or overlapping epitope(s) on human PCSK9 as an anti-human PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.
2. The anti-human PCSK9 antibody or antibody fragment of Claim 1, wherein said antibody or antibody fragment specifically binds to the same or overlapping epitope(s) on human PCSK9 as an anti-human PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.
3. The anti-human PCSK9 antibody or antibody fragment of Claim 2, wherein said epitope(s) are identified using a binding assay that detects the binding of said anti-human PCSK9 antibody to one or more peptides in a library of 10-15-mer peptides which are overlapping peptide fragments of human PCSK9 that correspond to all or substantially all of the length of the human PCSK9 polypeptide.
4. The anti-human PCSK9 antibody or antibody fragment of Claim 3, wherein said binding assay is a Western immunoblot assay which detects specific binding of the antibody or antibody fragment to one or more of said 10-15 mer peptides in said library by the use of a chemiluminescent label which emits a detectable chemiluminescent signal when specific binding of said antibody or antibody fragment to a peptide in said library occurs.
5. An anti-human PCSK9 antibody or antibody fragment according to Claim 1, wherein said antibody or antibody fragment contains at least 2 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11,

Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.

6. An anti-human PCSK9 antibody or antibody fragment according to Claim 1, wherein said antibody or antibody fragment contains at least 3 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.
7. An anti-human PCSK9 antibody or antibody fragment according to Claim 1, wherein said antibody or antibody fragment contains at least 4 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.
8. An anti-human PCSK9 antibody or antibody fragment according to Claim 1, wherein said antibody or antibody fragment contains at least 5 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24
9. An anti-human PCSK9 antibody or antibody fragment according to Claim 1, wherein said antibody or antibody fragment contains all 6 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.
10. An anti-human PCSK9 antibody or antibody fragment according to any one of Claims 1-9, wherein said antibody or antibody fragment contains (a) a variable heavy chain comprising a CDR1 sequence selected from the group consisting of SEQ ID NO: 4, SEQ ID NO: 44, SEQ ID NO: 84, SEQ ID NO: 124, SEQ ID NO:

164, SEQ ID NO: 204, SEQ ID NO: 244, SEQ ID NO: 284, SEQ ID NO: 324, SEQ ID NO: 364, SEQ ID NO: 404, SEQ ID NO: 444, SEQ ID NO: 484, SEQ ID NO: 524, SEQ ID NO: 564, SEQ ID NO: 604, SEQ ID NO: 644, SEQ ID NO: 684, SEQ ID NO: 724, SEQ ID NO: 764, SEQ ID NO: 804, SEQ ID NO: 844, SEQ ID NO: 884, and SEQ ID NO: 924; a CDR2 sequence selected from the group consisting of SEQ ID NO: 6, SEQ ID NO: 46, SEQ ID NO: 86, SEQ ID NO: 126, SEQ ID NO: 166, SEQ ID NO: 206, SEQ ID NO: 246, SEQ ID NO: 286, SEQ ID NO: 326, SEQ ID NO: 366, SEQ ID NO: 406, SEQ ID NO: 446, SEQ ID NO: 486, SEQ ID NO: 526, SEQ ID NO: 566, SEQ ID NO: 606, SEQ ID NO: 646, SEQ ID NO: 686, SEQ ID NO: 726, SEQ ID NO: 766, SEQ ID NO: 806, SEQ ID NO: 846, SEQ ID NO: 886, and SEQ ID NO: 926; and a CDR3 sequence selected from the group consisting of SEQ ID NO: 8, SEQ ID NO: 48, SEQ ID NO: 88, SEQ ID NO: 128, SEQ ID NO: 168, SEQ ID NO: 208, SEQ ID NO: 248, SEQ ID NO: 288, SEQ ID NO: 328, SEQ ID NO: 368, SEQ ID NO: 408, SEQ ID NO: 448, SEQ ID NO: 488, SEQ ID NO: 528, SEQ ID NO: 568, SEQ ID NO: 608, SEQ ID NO: 648, SEQ ID NO: 688, SEQ ID NO: 728, SEQ ID NO: 768, SEQ ID NO: 808, SEQ ID NO: 848, SEQ ID NO: 888, and SEQ ID NO: 928; and/or

(b) a variable light chain comprising a CDR1 sequence selected from the group consisting of SEQ ID NO: 24, SEQ ID NO: 64, SEQ ID NO: 104, SEQ ID NO: 144, SEQ ID NO: 184, SEQ ID NO: 224, SEQ ID NO: 264, SEQ ID NO: 304, SEQ ID NO: 344, SEQ ID NO: 384, SEQ ID NO: 424, SEQ ID NO: 464, SEQ ID NO: 504, SEQ ID NO: 544, SEQ ID NO: 584, SEQ ID NO: 624, SEQ ID NO: 664, SEQ ID NO: 704, SEQ ID NO: 744, SEQ ID NO: 784, SEQ ID NO: 824, SEQ ID NO: 864, SEQ ID NO: 904, and SEQ ID NO: 944; a CDR2 sequence selected from the group consisting of SEQ ID NO: 26, SEQ ID NO: 66, SEQ ID NO: 106, SEQ ID NO: 146, SEQ ID NO: 186, SEQ ID NO: 226, SEQ ID NO: 266, SEQ ID NO: 306, SEQ ID NO: 346, SEQ ID NO: 386, SEQ ID NO: 426, SEQ ID NO: 466, SEQ ID NO: 506, SEQ ID NO: 546, SEQ ID NO: 586, SEQ ID NO: 626, SEQ ID NO: 666, SEQ ID NO: 706, SEQ ID NO: 746, SEQ ID NO:

786, SEQ ID NO: 826, SEQ ID NO: 866, SEQ ID NO: 906, and SEQ ID NO: 946; and a CDR3 sequence selected from the group consisting of SEQ ID NO: 28, SEQ ID NO: 68, SEQ ID NO: 108, SEQ ID NO: 148, SEQ ID NO: 188, SEQ ID NO: 228, SEQ ID NO: 268, SEQ ID NO: 308, SEQ ID NO: 348, SEQ ID NO: 388, SEQ ID NO: 428, SEQ ID NO: 468, SEQ ID NO: 508, SEQ ID NO: 548, SEQ ID NO: 588, SEQ ID NO: 628, SEQ ID NO: 668, SEQ ID NO: 708, SEQ ID NO: 748, SEQ ID NO: 788, SEQ ID NO: 828, SEQ ID NO: 868, SEQ ID NO: 908, and SEQ ID NO: 948, with the further proviso that one or two residues of any of the afore-identified CDR polypeptides may be substituted with another amino acid, preferably a conservative amino acid substitution.

11. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 4, the CDR2 sequence of SEQ ID NO: 6, and the CDR3 sequence of SEQ ID NO: 8; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 24, the CDR2 sequence of SEQ ID NO: 26, and the CDR3 sequence of SEQ ID NO: 28.

12. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 44, the CDR2 sequence of SEQ ID NO: 46, and the CDR3 sequence of SEQ ID NO: 48; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 64, the CDR2 sequence of SEQ ID NO: 66, and the CDR3 sequence of SEQ ID NO: 68.

13. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 84, the CDR2 sequence of SEQ ID NO: 86, and the CDR3 sequence of SEQ ID NO: 88; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 104, the CDR2 sequence of SEQ ID NO: 106, and the CDR3 sequence of SEQ ID NO: 108.

14. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO:

124, the CDR2 sequence of SEQ ID NO: 126, and the CDR3 sequence of SEQ ID NO: 128; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 144, the CDR2 sequence of SEQ ID NO: 146, and the CDR3 sequence of SEQ ID NO: 148.

15. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 164, the CDR2 sequence of SEQ ID NO: 166, and the CDR3 sequence of SEQ ID NO: 168; and the variable light chain comprises the CDR1 sequence of SEQ ID NO: 184, the CDR2 sequence of SEQ ID NO: 186, and the CDR3 sequence of SEQ ID NO: 188.

16. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 204, the CDR2 sequence of SEQ ID NO: 206, and the CDR3 sequence of SEQ ID NO: 208; and the variable light chain comprises the CDR1 sequence of SEQ ID NO: 224, the CDR2 sequence of SEQ ID NO: 226, and the CDR3 sequence of SEQ ID NO: 228.

17. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 244, the CDR2 sequence of SEQ ID NO: 246, and the CDR3 sequence of SEQ ID NO: 248; and the variable light chain comprises the CDR1 sequence of SEQ ID NO: 264, the CDR2 sequence of SEQ ID NO: 266, and the CDR3 sequence of SEQ ID NO: 268.

18. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 284, the CDR2 sequence of SEQ ID NO: 286, and the CDR3 sequence of SEQ ID NO: 288; and the variable light chain comprises the CDR1 sequence of SEQ ID NO: 304, the CDR2 sequence of SEQ ID NO: 306, and the CDR3 sequence of SEQ ID NO: 308.

19. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO:

324, the CDR2 sequence of SEQ ID NO: 326, and the CDR3 sequence of SEQ ID NO: 328; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 344, the CDR2 sequence of SEQ ID NO: 346, and the CDR3 sequence of SEQ ID NO: 348.

20. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 364, the CDR2 sequence of SEQ ID NO: 366, and the CDR3 sequence of SEQ ID NO: 368; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 384, the CDR2 sequence of SEQ ID NO: 386, and the CDR3 sequence of SEQ ID NO: 388.

21. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 404, the CDR2 sequence of SEQ ID NO: 406, and the CDR3 sequence of SEQ ID NO: 408; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 424, the CDR2 sequence of SEQ ID NO: 426, and the CDR3 sequence of SEQ ID NO: 428.

22. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 444, the CDR2 sequence of SEQ ID NO: 446, and the CDR3 sequence of SEQ ID NO: 448; and the variable light chain comprises the CDR1 sequence of SEQ ID NO: 464, the CDR2 sequence of SEQ ID NO: 466, and the CDR3 sequence of SEQ ID NO: 468.

23. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 484, the CDR2 sequence of SEQ ID NO: 486, and the CDR3 sequence of SEQ ID NO: 488; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 504, the CDR2 sequence of SEQ ID NO: 506, and the CDR3 sequence of SEQ ID NO: 508.

24. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO:

524, the CDR2 sequence of SEQ ID NO: 526, and the CDR3 sequence of SEQ ID NO: 528; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 544, the CDR2 sequence of SEQ ID NO: 546, and the CDR3 sequence of SEQ ID NO: 548.

25. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 564, the CDR2 sequence of SEQ ID NO: 566, and the CDR3 sequence of SEQ ID NO: 568; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 584, the CDR2 sequence of SEQ ID NO: 586, and the CDR3 sequence of SEQ ID NO: 588.

26. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 604, the CDR2 sequence of SEQ ID NO: 606, and the CDR3 sequence of SEQ ID NO: 608; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 624, the CDR2 sequence of SEQ ID NO: 626, and the CDR3 sequence of SEQ ID NO: 628.

27. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 644, the CDR2 sequence of SEQ ID NO: 646, and the CDR3 sequence of SEQ ID NO: 648; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 664, the CDR2 sequence of SEQ ID NO: 666, and the CDR3 sequence of SEQ ID NO: 668.

28. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 684, the CDR2 sequence of SEQ ID NO: 686, and the CDR3 sequence of SEQ ID NO: 688; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 704, the CDR2 sequence of SEQ ID NO: 706, and the CDR3 sequence of SEQ ID NO: 708

29. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO:

724, the CDR2 sequence of SEQ ID NO: 726, and the CDR3 sequence of SEQ ID NO: 728; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 744, the CDR2 sequence of SEQ ID NO: 746, and the CDR3 sequence of SEQ ID NO: 748

30. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 764, the CDR2 sequence of SEQ ID NO: 766, and the CDR3 sequence of SEQ ID NO: 768; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 784, the CDR2 sequence of SEQ ID NO: 786, and the CDR3 sequence of SEQ ID NO: 788

31. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 804, the CDR2 sequence of SEQ ID NO: 806, and the CDR3 sequence of SEQ ID NO: 808; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 824, the CDR2 sequence of SEQ ID NO: 826, and the CDR3 sequence of SEQ ID NO: 828.

32. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 844, the CDR2 sequence of SEQ ID NO: 846, and the CDR3 sequence of SEQ ID NO: 848; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 864, the CDR2 sequence of SEQ ID NO: 866, and the CDR3 sequence of SEQ ID NO: 868.

33. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO: 884, the CDR2 sequence of SEQ ID NO: 886, and the CDR3 sequence of SEQ ID NO: 888; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 904, the CDR2 sequence of SEQ ID NO: 906, and the CDR3 sequence of SEQ ID NO: 908.

34. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises the CDR1 sequence of SEQ ID NO:

924, the CDR2 sequence of SEQ ID NO: 926, and the CDR3 sequence of SEQ ID NO: 928; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 944, the CDR2 sequence of SEQ ID NO: 946, and the CDR3 sequence of SEQ ID NO: 948.

35. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 2 and/or the variable light chain comprises SEQ ID NO: 22.
36. The anti-human PCSK9 antibody or antibody fragment of claim 35, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 2 and SEQ ID NO: 22, respectively.
37. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 42 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 62.
38. The anti-human PCSK9 antibody or antibody fragment of claim 37, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 42 and SEQ ID NO: 62, respectively.
39. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 82 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 102.
40. The anti-human PCSK9 antibody or antibody fragment of claim 39, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 82 and SEQ ID NO: 102, respectively.
41. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 122 and the variable light chain

comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 142.

42. The anti-human PCSK9 antibody or antibody fragment of claim 41, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 122 and SEQ ID NO: 142, respectively.
43. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 162 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 182.
44. The anti-human PCSK9 antibody or antibody fragment of claim 43, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 162 and SEQ ID NO: 182, respectively.
45. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10 wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 202 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 222.
46. The anti-human PCSK9 antibody or antibody fragment of claim 45, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 202 and SEQ ID NO: 222, respectively.
47. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10 , wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 242 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 262.
48. The anti-human PCSK9 antibody or antibody fragment of claim 47, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 242 and SEQ ID NO: 262, respectively.

49. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 282 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 302.
50. The anti-human PCSK9 antibody or antibody fragment of claim 49, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 282 and SEQ ID NO: 302, respectively.
51. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 322 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 342.
52. The anti-human PCSK9 antibody or antibody fragment of claim 51, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 322 and SEQ ID NO: 342, respectively.
53. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 362 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 382.
54. The anti-human PCSK9 antibody or antibody fragment of claim 53, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 362 and SEQ ID NO: 382, respectively.
55. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 402 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 422.

56. The anti-human PCSK9 antibody or antibody fragment of claim 55, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 402 and SEQ ID NO: 422, respectively.
57. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 442 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 462.
58. The anti-human PCSK9 antibody or antibody fragment of claim 57, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 442 and SEQ ID NO: 462, respectively.
59. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 482 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 502.
60. The anti-human PCSK9 antibody or antibody fragment of claim 59, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 482 and SEQ ID NO: 502, respectively.
61. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 522 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 542.
62. The anti-human PCSK9 antibody or antibody fragment of claim 61, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 522 and SEQ ID NO: 542, respectively.
63. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 562 and the variable light chain

comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 582.

64. The anti-human PCSK9 antibody or antibody fragment of claim 63, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 562 and SEQ ID NO: 582, respectively.
65. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 602 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 622.
66. The anti-human PCSK9 antibody or antibody fragment of claim 65, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 602 and SEQ ID NO: 622, respectively.
67. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 642 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 662.
68. The anti-human PCSK9 antibody or antibody fragment of claim 67, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 642 and SEQ ID NO: 662, respectively.
69. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 682 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 702.
70. The anti-human PCSK9 antibody or antibody fragment of claim 69, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 682 and SEQ ID NO: 702, respectively

71. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 722 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 742.
72. The anti-human PCSK9 antibody or antibody fragment of claim 71, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 722 and SEQ ID NO: 742, respectively
73. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 762 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 782.
74. The anti-human PCSK9 antibody or antibody fragment of claim 73, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 762 and SEQ ID NO: 782, respectively
75. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 802 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 822.
76. The anti-human PCSK9 antibody or antibody fragment of claim 75, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 802 and SEQ ID NO: 822, respectively.
77. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 842 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 862.

78. The anti-human PCSK9 antibody or antibody fragment of claim 77, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 842 and SEQ ID NO: 862, respectively.
79. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 882 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 902.
80. The anti-human PCSK9 antibody or antibody fragment of claim 79, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 882 and SEQ ID NO: 902, respectively.
81. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the variable heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 922 and the variable light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 942.
82. The anti-human PCSK9 antibody or antibody fragment of claim 81, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 922 and SEQ ID NO: 942, respectively.
83. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 1 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 21.
84. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 41 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 61.
85. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98,

99 or 100% identical to SEQ ID NO: 81 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 101.

86. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 121 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 141.

87. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 161 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 181.

88. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, , wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 201 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 221.

89. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 241 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 261.

90. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 281 and the light chain comprises SEQ ID NO: 301.

91. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises SEQ ID NO: 321 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 341.

92. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 361 and the light chain comprises SEQ ID NO: 381.
93. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises SEQ ID NO: 401 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 421.
94. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 441 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 461.
95. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 481 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 501.
96. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 521 and the light chain comprises SEQ ID NO: 541.
97. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises SEQ ID NO: 561 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 581.
98. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 601 and the light chain comprises SEQ ID NO: 621.

99. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises SEQ ID NO: 641 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 661.
100. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 681 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 701.
101. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 721 and the light chain comprises SEQ ID NO: 741.
102. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises SEQ ID NO: 761 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 781.
103. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 801 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 821.
104. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 841 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 861.
105. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98,

99 or 100% identical to SEQ ID NO: 881 and the light chain comprises SEQ ID NO: 901.

106. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the heavy chain comprises SEQ ID NO: 921 and the light chain comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 941.
107. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-106, wherein the antibody or antibody fragment is selected from the group consisting of chimeric, humanized, and human antibodies or antibody fragments.
108. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-106, wherein the antibody or antibody fragment is selected from the group consisting of scFvs, camelbodies, nanobodies, IgNAR, F_{ab} fragments, $F_{ab'}$ fragments, MetMab like antibodies, monovalent antibody fragments, and $F_{(ab')2}$ fragments.
109. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-108, wherein the antibody or antibody fragment substantially or entirely lacks N-glycosylation and/or O-glycosylation.
110. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-109, wherein the antibody or antibody fragment comprises a human constant domain.
111. The anti-human PCSK9 antibody or antibody fragment of claim 110, wherein the antibody is an IgG1, IgG2, IgG3, or IgG4 antibody.
112. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-111, wherein the antibody or antibody fragment comprises an Fc region that has been modified to alter at least one of effector function, half-life, proteolysis, or glycosylation.
113. The anti-human PCSK9 antibody or antibody fragment of claim 112, wherein the Fc region contains one or more mutations that alters or eliminates N- and/or O-glycosylation.

114. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-108, wherein the antibody or antibody fragment is a humanized antibody or antibody fragment.
115. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-114 wherein the antibody or antibody fragment binds to PCSK9 with a dissociation constant (K_d) of less than or equal to 10^{-2} M, $5x10^{-3}$ M, 10^{-3} M, $5x10^{-4}$ M, 10^{-4} M, $5x10^{-5}$ M, 10^{-5} M, $5x10^{-6}$ M, 10^{-6} M, $5x10^{-7}$ M, 10^{-7} M, $5x10^{-8}$ M, 10^{-8} M, $5x10^{-9}$ M, 10^{-9} M, $5x10^{-10}$ M, 10^{-10} M, $5x10^{-11}$ M, 10^{-11} M, $5x10^{-12}$ M, 10^{-12} M, $5x10^{-13}$ M, or 10^{-13} M.
116. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-115, wherein the antibody or antibody fragment binds to PCSK9 with a dissociation constant (K_d) of less than or equal to 10^{-11} M, $5x10^{-12}$ M, or 10^{-12} M.
117. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-116, which binds to PCSK9 with an off-rate of less than or equal to 10^{-4} S^{-1}, $5x10^{-5}$ S^{-1}, 10^{-5} S^{-1}, $5x10^{-6}$ S^{-1}, 10^{-6} S^{-1}, $5x10^{-7}$ S^{-1}, or 10^{-7} S^{-1}.
118. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-117, wherein the antibody or antibody fragment is directly or indirectly attached to a detectable label or therapeutic agent.
119. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-108, which when administered to a human subject inhibits or neutralizes at least one biological effect elicited by PCSK9.
120. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-108, which when administered to a human subject reduces serum cholesterol.
121. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-118, wherein the antibody or antibody fragment is capable of inhibiting the binding of PCSK9 to LDLR.
122. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-121, wherein the antibody or antibody fragment binds to PCSK9 with a K_D that is less than about 100 nM.

123. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-121, wherein the antibody or antibody fragment binds to PCSK9 with a K_D that is less than about 10 nM.
124. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-121, wherein the antibody or antibody fragment binds to PCSK9 with a K_D that is less than about 1 nM.
125. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-121, wherein the antibody or antibody fragment binds to PCSK9 with a K_D that is between about 1 and about 10 nM.
126. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-121, wherein the antibody or antibody fragment binds to PCSK9 with a K_D that is between about 0.1 and about 1 nM.
127. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-121, wherein the antibody or antibody fragment binds to PCSK9 with a K_D that is between 0.12 and 7.99 nM.
128. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-127, wherein the antibody or antibody fragment is attached to at least one effector moiety.
129. The anti-human PCSK9 antibody or antibody fragment of claim 128, wherein effector moiety comprises a chemical linker.
130. The anti-human PCSK9 antibody or antibody fragment of claim 129, wherein the antibody or antibody fragment is attached to one or more detectable moieties.
131. The anti-human PCSK9 antibody or antibody fragment of claim 130, wherein detectable moiety comprises a fluorescent dye, enzyme, substrate, bioluminescent material, radioactive material, chemiluminescent moiety, or mixtures thereof.
132. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-132, wherein the antibody or antibody fragment is attached to one or more functional moieties.
133. An anti-idiotypic antibody produced against an anti-human PCSK9 antibody or antibody fragment according to any one of Claims 1-132.

134. A composition suitable for therapeutic, prophylaxis, or a diagnostic use comprising a therapeutically, prophylactically or diagnostically effective amount of at least one antibody or antibody fragment according to any one of claims 1-133.
135. The composition of Claim 134, which is suitable for subcutaneous administration.
136. The composition of Claim 134, which is suitable for intravenous administration.
137. The composition of Claim 134, which is suitable for topical administration.
138. The composition of Claim 134, which is lyophilized.
139. The composition of any one of Claims 134-137, further comprising a pharmaceutically acceptable diluent, carrier, solubilizer, emulsifier, preservative, or mixture thereof.
140. The composition of any one of Claims 134-137, further comprising another active agent.
141. The composition of any one of Claim 140, wherein the other active agent is selected from the group consisting of the following: statins, ACE inhibitors, Angiotensin II receptor blockers (ARBs), Antiarrhythmics, Antiplatelet Drugs, aspirin, beta blockers, amiodarone, digoxin, aspirin, anti-clotting agents, digoxin, diuretics, heart failure drugs, vasodilators, blood thinners, other anti-cholesterol drugs such as holestyramine (Questran), gemfibrozil (Lopid, Gemcor), Omacor, pantethine, anti-hypertensives, antidiabetigenic drugs, Meglitinides, Sulfonylurea, and Thiazolidinediones.
142. The composition of Claim 141, wherein the ACE inhibitor is selected from : Capoten (captopril), Vasotec (enalapril), Prinivil, Zestril (lisinopril), Lotensin (benazepril), Monopril (fosinopril), Altace (ramipril), Accupril (quinapril), Aceon (perindopril), Mavik (trandolapril), Univasc (moexipril),
143. The composition of Claim 141, wherein the ARB is selected from: Cozaar (losartan), Diovan (valsartan), Avapro (irbesartan), Atacand (candesartan), and Micardis (telmisartan).

144. The composition of Claim 141, wherein the Antiarrhythmic is selected from Tambocor (flecainide), Procanbid (procainamide), Cordarone (amiodarone), and Betapace (sotalol).
145. The composition of Claim 141, wherein the anticlotting agent is selected from Anticlotting agents which may be used in combination with the subject anti-PCSK9 antibodies and antibody fragments include: Tissue plasminogen activator (TPA), Tenecteplase, Alteplase, Urokinase, Reteplase, Streptokinase, Fxl antagonist and anto-thrombotics.
146. The composition of Claim 141, wherein the Beta blocker is selected from Sectral (acebutolol), Zebeta (bisoprolol), Brevibloc (esmolol), Inderal (propranolol), Tenormin (atenolol), Normodyne, Trandate (labetalol), Coreg (carvedilol), Lopressor, and Toprol-XL (metoprolol).
147. The composition of Claim 141, wherein the calcium channel blocker is selected from: Norvasc (amlodipine), Plendil (felodipine), Cardizem, Cardizem CD, Cardizem SR, Dilacor XR, Diltia XT, Tiazac (diltiazem), Calan, Calan SR, Covera-HS, Isoptin, Isoptin SR, Verelan, Verelan PM (verapamil), Adalat, Adalat CC, Procardia, Procardia XL (nifedipine), Cardene, Cardene SR (nicardipine), Sular (nisoldipine), Vascor (bepridil), and Caduet which is a combination of a statin cholesterol drug and amlodipine.
148. The composition of Claim 141, wherein the diuretic is selected from : Lasix (furosemide), Bumex (bumetanide), Demadex (torsemide), Esidrix (hydrochlorothiazide), Zaroxolyn (metolazone), and Aldactone (spironolactone).
149. The composition of Claim 141, wherein the heart failure drug is selected from Dobutrex (dobutamine), and Primacor (milrinone).
150. The composition of Claim 141, wherein the vasodilator is selected from Dilatrate-SR, Iso-Bid, Isonate, Isorbid, Isordil, Isotrate, Sorbitrate (isosorbide dinitrate), IMDUR (isorbide mononitrate), and BiDil (hydralazine with isosorbide dinitrate.
151. The composition of Claim 141, wherein the blood thinner is selected Warfarin (coumadin), Heparin, Lovenox, and Fragmin.

152. The composition of Claim 140, wherein the composition further comprises another therapeutic agent that elevates the availability of LDLR protein.
153. The composition of Claim 140, wherein the composition further comprises another therapeutic agent that blocks or inhibits cholesterol synthesis.
154. The composition of Claim 140, wherein the composition further comprises a statin.
155. The composition of claim 154, wherein the statin is selected atorvastatin, cerivastatin, fluvastatin, lovastatin, mevastatin, pitavastatin, pravastatin, rosuvastatin, simvastatin, or mixtures thereof.
156. The composition of Claim 140, wherein the composition further comprises another therapeutic agent that elevates the HDL level, or an agent which decreases triglyceride levels, or both.
157. The composition of Claim 140, wherein the composition further comprises a fibrate.
158. The composition of Claim 157, wherein the fibrate comprises bezafibrate, ciprofibrate, clofibrate, gemfibrozil, fenofibrate, or mixtures thereof.
159. The composition of Claim 140, wherein the composition further comprises a bile sequestering agent.
160. The composition of Claim 159, wherein bile sequestering agent comprises cholestyramine, colesevelam, colestipol, or mixtures thereof.
161. The composition of Claim 140, wherein the composition further comprises an agent that decreases cholesterol absorption in the intestines.
162. The composition of Claim 161, wherein the agent comprises ezetimibe.
163. The composition of Claim 140, wherein the composition comprises an agent that that inhibits hepatic triglyceride production, inhibits VLDL secretions, or both.
164. The composition of Claim 163, wherein the agent comprises acipimox.
165. The composition of Claim 140, wherein the composition further comprises an agent that decreases lipid absorption in the intestines.
166. The composition of Claim 165, wherein the agent comprises orlistat, lipstatin, or mixtures thereof.

167. The composition of Claim 140, wherein the composition further comprises an agent that is an anti-hypertensive, an agent that treat angina, or both.

168. The composition of Claim 167, wherein said anti-hypertensive or anti-angina agent is selected from a diuretic, an adrenergic receptor antagonist, a calcium channel blocker, a renin inhibitor, an ACE inhibitor, an angiotensin II receptor antagonist, aa aldosterone antagonist, a vasodilator or an alpha-2 agonist.

169. The composition of Claim 168, wherein the diuretics include bumetanide, thacrynic acid, furosemide, and torsemide; a thiazide diuretic such as epitizide, hydrochlorothiazide or chlorothiazide, or bendroflumethiazide; a thiazide-like diuretic such as indapamide, chlorthalidone, or metolazone; a potassium-sparing diuretic such as amiloride, triamterene, or spironolactone; the adrenergic receptor antagonists include beta blockers such as atenolol, metoprolol, nadolol, oxprenolol, pindolol, propranolol, or timolol; the alpha blockers include doxazosin, phentolamine, indoramin, phenoxybenzamine, prazosin, terazosin, and tolazoline; mixed alpha + beta blockers such as bucindolol, carvedilol, and labetalol; the calcium channel blockers include dihydropyridines such as amlodipine, felodipine, isradipine, lercanidipine, nicardipine, nifedipine, nimodipine, and nitrendipine; non-dihydropyridines such as diltiazem and verapamil; renin inhibitors such as Aliskiren; ACE inhibitors such as captopril, enalapril, fosinopril, lisinopril, perindopril, quinapril, ramipril, trandolapril, and benazepril; angiotensin II receptor antagonists such as candesartan, eprosartan, irbesartan, losartan, olmesartan, telmisartan, and valsartan; aldosterone antagonists such as eplerenone andspironolactone; vasodilators such as sodium nitroprusside; and Alpha-2 agonists such as Clonidine, Guanabenz, Methyldopa, Moxonidine, Guanethidine or Reserpine; or a nitrate such as nitroglycerin (glyceryl trinitrate), pentaerythritol tetranitrate, isosorbide dinitrate or isosorbide mononitrate.

170. The composition of any one of Claims 134-169, which further comprises at least one other agent, wherein the combination allows for mitigation of undesirable side effects of at least one other agent contained therein.

171. The composition of any one of Claims 140-170, which further comprises at least one therapeutic agent for inflammation.
172. The composition of claim 171, wherein the therapeutic agent for inflammation comprises a cyclooxygenase type 1 inhibitor, a cyclooxygenase type 2 inhibitor, a small molecule modulator of p38-MAPK, a small molecule modulator of intracellular molecules involved in inflammation pathways, or mixtures thereof.
173. The composition of any one of claims 140-172, which is lyophilized, stabilized and/or or formulated for administration by injection.
174. A method for blocking, inhibiting or neutralizing one or more biological effects associated with PCSK9 comprising administering to a subject in need thereof an effective amount of at least one antibody according to any one of Claims 1-133 or a composition according to any one of Claims 134-173.
175. A method for treating or preventing a condition associated with elevated serum cholesterol levels in a patient, comprising administering to a patient in need thereof an effective amount of at least one antibody according to any one of Claims 1-133 or a composition according to any one of Claims 134-173.
176. A method for treating or preventing elevated serum cholesterol levels in a patient in need thereof or at risk of developing elevated serum cholesterol levels because of an existing condition, comprising administering to the patient an effective amount of at least one antibody according to any one of Claims 1-133 or a composition according to any one of Claims 134-173.
177. The method of Claim 174, 175 or 176 wherein the condition is selected from the group consisting of hypercholesterolemia, coronary heart disease, hyperlipidemia, hypertriglyceridaemia, sitosterolemia, atherosclerosis, arteriosclerosis metabolic syndrome, acute coronary syndrome, vascular inflammation, xanthoma, diabetes, obesity, hypertension, and angina.
178. A method for treating or preventing a disorder involving cholesterol or lipid homeostasis or complications associated therewith, comprising administering to the patient an effective amount of at least one antibody according to any one of Claims 1-133 or a composition according to any one of Claims 134-173.

179. The method of Claim 178, wherein the treated condition is selected from hypercholesterolemia, hyperlipidemia, hypertriglyceridaemia, and sitosterolemia.
180. The method of any one of claims 174-179, wherein the at least one isolated anti-human PCSK9 antibody or antibody inhibits the binding of PCSK9 to LDLR.
181. The method of any one of Claims 174-180, wherein the at least one isolated anti-human PCSK9 antibody or antibody fragment results in blocking or inhibition of cholesterol synthesis.
182. The method of any one of Claims 174-181, wherein the method further comprises administering separately or co-administering another agent, which agent that elevates the availability of LDLR protein or which blocks or inhibits cholesterol synthesis.
183. The method of any one of Claims 173-180, wherein the administration is part of a therapeutic regimen that further includes the administration of at least one of the following: statins, ACE inhibitors, Angiotensin II receptor blockers (ARBs), Antiarrhythmics, Antiplatelet Drugs, aspirin, beta blockers, amiodarone, digoxin, aspirin, anti-clotting agents, digoxin, diuretics, heart failure drugs, vasodilators, blood thinners, other anti-cholesterol drugs such as holestyramine (Questran), gemfibrozil (Lopid, Gemcor), Omacor, pantethine, anti-hypertensives, antidiabetigenic drugs, Meglitinides, Sulfonylurea, and Thiazolidinediones.
184. The method of Claim 183, wherein the ACE inhibitor is selected from : Capoten (captopril), Vasotec (enalapril), Prinivil, Zestril (lisinopril), Lotensin (benazepril), Monopril (fosinopril), Altace (ramipril), Accupril (quinapril), Aceon (perindopril), Mavik (trandolapril), Univasc (moexipril),
185. The method of Claim 183, wherein the ARB is selected from : Cozaar (losartan), Diovan (valsartan), Avapro (irbesartan), Atacand (candesartan), and Micardis (telmisartan).
186. The method of Claim 183, wherein the antiarythmic is selected from : Tambocor (flecainide), Procanbid (procainamide), Cordarone (amiodarone), and Betapace (sotalol).

187. The method of Claim 183, wherein the anti-clotting agent is selected from: Tissue plasminogen activator (TPA), Tenecteplase, Alteplase, Urokinase, Reteplase, and Streptokinase.
188. The method of Claim 183, wherein the Beta-blocker is selected from : Sectral (acebutolol), Zebeta (bisoprolol), Brevibloc (esmolol), Inderal (propranolol), Tenormin (atenolol), Normodyne, Trandate (labetalol), Coreg (carvedilol), Lopressor, and Toprol-XL (metoprolol).
189. The method of Claim 183, wherein the calcium channel blocker is selected from : Norvasc (amlodipine), Plendil (felodipine), Cardizem, Cardizem CD, Cardizem SR, Dilacor XR, Diltia XT, Tiazac (diltiazem), Calan, Calan SR, Covera-HS, Isoptin, Isoptin SR, Verelan, Verelan PM (verapamil), Adalat, Adalat CC, Procardia, Procardia XL (nifedipine), Cardene, Cardene SR (nicardipine), Sular (nisoldipine), Vascor (bepridil), and Caduet which is a combination of a statin cholesterol drug and amlodipine.
190. The method of Claim 183, wherein the antidiruetic is selected from: Lasix (furosemide), Bumex (bumetanide), Demadex (torsemide), Esidrix (hydrochlorothiazide), Zaroxolyn (metolazone), and Aldactone (spironolactone).
191. The method of Claim 183, wherein the heart failure drug is selected from Dobutrex (dobutamine), and Primacor (milrinone).
192. The method of Claim 183, wherein the vasodilator is selected from: Dilatrate-SR, Iso-Bid, Isonate, Isorbid, Isordil, Isotrate, Sorbitrate (isosorbide dinitrate), IMDUR (isorbide mononitrate), and BiDil (hydralazine with isosorbide dinitrate.
193. The method of Claim 183, wherein the blood thinner is selected from Warfarin (coumadin), Heparin, Lovenox, and Fragmin.
194. The method of Claim 182, wherein the agent that elevates the availability of LDLR protein or which blocks or inhibits cholesterol synthesis is administered simultaneously with the antibody or composition containing.
195. The method of claim 182, wherein another agent that elevates the availability of LDLR protein or which blocks or inhibits cholesterol synthesis is administered.

sequentially relative to the administration of the antibody or composition containing.

196. The method of claim 195, wherein the agent that blocks or inhibits cholesterol synthesis protein comprises a statin.
197. The method of claim 196, wherein the statin is selected from atorvastatin, cerivastatin, fluvastatin, lovastatin, mevastatin, pitavastatin, pravastatin, rosuvastatin, simvastatin, or mixtures thereof.
198. The method of claim 182 wherein the method further comprises administering an agent that elevates the HDL level, an agent that decreases triglyceride levels, or both.
199. The method of claim 198, wherein the agent comprises a fibrate.
200. The method of claim 199, wherein the fibrate agent comprises bezafibrate, ciprofibrate, clofibrate, gemfibrozil, fenofibrate, or mixtures thereof.
201. The method of claim 182, wherein the method further comprises administering a bile sequestering agent.
202. The method of claim 201, wherein the bile sequestering agent comprises cholestyramine, colesevelam, colestipol, or mixtures thereof.
203. The method of claim 182, wherein the method further comprises administering an agent that decreases cholesterol absorption in the intestines.
204. The method of claim 203, wherein the agent comprises ezetimibe.
205. The method of claim 182, wherein the method further comprises administering an agent that inhibits hepatic triglyceride production, inhibits VLDL secretions, or both.
206. The method of claim 205, wherein the agent comprises acipimox.
207. The method of claim 182, wherein the method further comprises administering an agent that decreases lipid absorption in the intestines.
208. The method of claim 207, wherein the agent comprises orlistat, lipstatin, or mixtures thereof.
209. The method of claim 182174, wherein the method further comprises administering an agent that is an anti-hypertensive, one that treats angina, or both.

210. The method of Claim 209, wherein said anti-hypertensive or anti-angina agent is selected from a diuretic, an adrenergic receptor antagonist, a calcium channel blocker, a renin inhibitor, an ACE inhibitor, an angiotensin II receptor antagonist, aa aldosterone antagonist, a vasodilator or an alpha-2 agonist.

211. The method of Claim 210, wherein the diuretics include bumetamide, thacrynic acid, furosemide, and torsemide; a thiazide diuretic such as epitizide, hydrochlorothiazide or chlorothiazide, or bendroflumethiazide; a thiazide-like diuretic such as indapamide, chlorthalidone, or metolazone; a potassium-sparing diuretic such as amiloride, triamterene, or spironolactone; the adrenergic receptor antagonists include beta blockers such as atenolol, metoprolol, nadolol, oxprenolol, pindolol, propranolol, or timolol; the alpha blockers include doxazosin, phentolamine, indoramin, phenoxybenzamine, prazosin, terazosin, and tolazoline; mixed alpha + beta blockers such as bucindolol, carvedilol, and labetalol; the calcium channel blockers include dihydropyridines such as amlodipine, felodipine, isradipine, lercanidipine, nicardipine, nifedipine, nimodipine, and nitrendipine; non-dihydropyridines such as diltiazem and verapamil; renin inhibitors such as Aliskiren; an ACE inhibitors such as captopril, enalapril, fosinopril, lisinopril, perindopril, quinapril, ramipril, trandolapril, and benazepril; angiotensin II receptor antagonists such as candesartan, eprosartan, irbesartan, losartan, olmesartan, telmisartan, and valsartan; aldosterone antagonists such as eplerenone andspironolactone; vasodilators such as sodium nitroprusside; and Alpha-2 agonists such as Clonidine, Guanabenz, Methyldopa, Moxonidine, Guanethidine or Reserpine; or a nitrate such as nitroglycerin (glyceryl trinitrate), pentaerythritol tetranitrate, isosorbide dinitrate or isosorbide mononitrate.

212. The method of any one of claims 174-211, wherein the method further comprises administering at least one other agent, wherein the combination allows for mitigation of undesirable side effects of at least one other agent.

213. The method of any one of claims 182-212, wherein the antibody or antibody fragment or composition containing and the at least one other agent are administered concurrently.
214. The method of any one of claims 181-212, wherein the antibody or antibody fragment is administered before or after the at least one other agent.
215. A method for lowering serum cholesterol level in a subject comprising administering to a subject an effective amount of at least one anti-human PCSK9 antibody or antibody fragment according to any one of claims 1-133 or a composition according to claims 134-172.
216. The method of any one of claims 174-215, wherein administering the at least one isolated anti-human PCSK9 antibody or antibody fragment or composition inhibits PCSK9 binding to LDLR.
217. The method of any one of Claims 174-216, wherein the method further comprises administering an agent that elevates the availability of LDLR protein or which decreases serum cholesterol.
218. The method of claim 217, wherein the agent that elevates the availability of LDLR protein or which decreases cholesterol is administered simultaneously with the antibody or composition containing .
219. The method of claim 217, wherein the agent that elevates the availability of LDLR protein or which decrease serum cholesterol is administered sequentially.
220. The method of claim 217, wherein the agent that reduces serum cholesterol comprises a statin.
221. The method of claim 220, wherein the statin comprises atorvastatin, cerivastatin, fluvastatin, lovastatin, mevastatin, pitavastatin, pravastatin, rosuvastatin, simvastatin, or a combination thereof.
222. The method of any one of claims 174-221 wherein the method further comprises administering an agent that elevates the HDL level, an agent that decreases triglyceride levels, or both.
223. The method of claim 222, wherein the agent comprises a fibrate.

224. The method of claim 223, wherein the fibrate comprises bezafibrate, ciprofibrate, clofibrate, gemfibrozil, fenofibrate, or mixtures thereof.
225. The method of any one of claims 174-212 wherein the method further comprises administering a bile sequestering agent.
226. The method of claim 225, wherein the bile sequestering agent comprises cholestyramine, colesevelam, colestipol, or mixtures thereof.
227. The method of any one of claims 174-219, wherein the method further comprises administering an agent that decreases cholesterol absorption in the intestines.
228. The method of claim 227, wherein the agent comprises ezetimibe.
229. The method of any one of claims 174-228 wherein the method further comprises administering an agent that inhibits hepatic triglyceride production, inhibits VLDL secretions, or both.
230. The method of claim 229, wherein the agent comprises acipimox, Gemfibrozil or nicotinic acid, and nicotinic acid analogs.
231. The method of any one of claims 174-230, wherein the method further comprises administering an agent that decreases lipid absorption in the intestines.
232. The method of claim 231, wherein the agent comprises orlistat, lipstatin, or mixtures thereof.
233. The method of any one of claims 174-232 wherein the antibody or antibody fragment is administered before or after other active agent.
234. A method of increasing LDLR protein level in a subject, the method comprising administering to a subject an effective amount of at least one isolated antibody or antibody fragment according to any one of claims 1-132 or a composition according to any one of claims 134-173.
235. The method of claim 234, wherein administering the at least one isolated anti-human PCSK9 antibody or antibody fragment inhibits PCSK9 binding to LDLR.
236. The method of claim 235, wherein the method further comprises administering another agent that elevates the availability of LDLR protein or one which decreases serum cholesterol.

237. The method of claim 236, wherein the agent that elevates the availability of LDLR protein or which decrease serum cholesterol is administered simultaneously with the antibody or antibody composition.
238. The method of claim 236, wherein the agent that elevates the availability of LDLR protein or which reduces serum cholesterol is administered sequentially with respect to the antibody or antibody composition.
239. The method of claim 236, wherein the agent that reduces serum cholesterol protein comprises a statin.
240. The method of claim 239, wherein the statin comprises atorvastatin, cerivastatin, fluvastatin, lovastatin, mevastatin, pitavastatin, pravastatin, rosuvastatin, simvastatin, or a combination thereof.
241. The method of claim 234, wherein the method further comprises administering an agent that elevates the HDL level, an agent that decreases triglyceride levels, or both.
242. The method of claim 241, wherein the other agent comprises a fibrate.
243. The method of claim 242, wherein the fibrate comprises bezafibrate, ciprofibrate, clofibrate, gemfibrozil, fenofibrate, or mixtures thereof.
244. The method of claim 234, wherein the method further comprises administering a bile sequestering agent.
245. The method of claim 244, wherein the bile sequestering agent comprises cholestyramine, colesevelam, colestipol, or mixtures thereof.
246. The method of claim 234, wherein the method further comprises administering an agent that decreases cholesterol absorption in the intestines.
247. The method of claim 246, wherein the agent comprises ezetimibe.
248. The method of claim 234, wherein the method further comprises administering an agent that inhibits hepatic triglyceride production, inhibits VLDL secretions, or both.
249. The method of claim 246, wherein the agent comprises acipimox, Gemfibrozil or nicotinic acid, or a nicotinic acid analog.

250. The method of claim 234, wherein the method further comprises administering an agent that decreases lipid absorption in the intestines.
251. The method of claim 250, wherein the agent comprises orlistat, lipstatin, or mixtures thereof.
252. The method of claim 234, wherein the method further comprises administering an agent that is an anti-hypertensive, treats angina, or both.
253. The method of claim 252, wherein the agent comprises amlodipine, diuretic, an adrenergic receptor antagonist, a calcium channel blocker, a renin inhibitor, an ACE inhibitor, an angiotensin II receptor antagonist, aa aldosterone antagonist, a vasodilator, a nitrate or an alpha-2 agonist.
254. The method of Claim 253, wherein the diuretics include bumetanide, thacrynic acid, furosemide, and torsemide; a thiazide diuretic such as epitizide, hydrochlorothiazide or chlorothiazide, or bendroflumethiazide; a thiazide-like diuretic such as indapamide, chlorthalidone, or metolazone; a potassium-sparing diuretic such as amiloride, triamterene, or spironolactone; the adrenergic receptor antagonists include beta blockers such as atenolol, metoprolol, nadolol, oxprenolol, pindolol, propranolol, or timolol; the alpha blockers include doxazosin, phentolamine, indoramin, phenoxybenzamine, prazosin, terazosin, and tolazoline; mixed alpha + beta blockers such as bucindolol, carvedilol, and labetalol; the calcium channel blockers include dihydropyridines such as amlodipine, felodipine, isradipine, lercanidipine, nicardipine, nifedipine, nimodipine, and nitrendipine; non-dihydropyridines such as diltiazem and verapamil; renin inhibitors such as Aliskiren; an ACE inhibitors such as captopril, enalapril, fosinopril, lisinopril, perindopril, quinapril, ramipril, trandolapril, and benazepril; angiotensin II receptor antagonists such as candesartan, eprosartan, irbesartan, losartan, olmesartan, telmisartan, and valsartan; aldosterone antagonists such as eplerenone andspironolactone; vasodilators such as sodium nitroprusside; and Alpha-2 agonists such as Clonidine, Guanabenz, Methyldopa, Moxonidine, Guanethidine or Reserpine; or

a nitrate such as nitroglycerin (glyceryl trinitrate), pentaerythritol tetranitrate, isosorbide dinitrate or isosorbide mononitrate.

255. The method of any one of Claims 174-254 wherein the antibody or antibody fragment or composition containing and at least one other agent are administered concurrently.

256. The method of any one of Claims 174-255 wherein the antibody or antibody fragment or composition containing and at least one other agent are administered separately, optionally by different dosing methods.

257. The method of claim 256 wherein the antibody or antibody fragment is administered before or after the at least one other agent.

258. The method of any one of Claims 174-257 wherein the antibody or antibody fragment or composition containing are administered with an agent that inhibits inflammation.

259. The method of claim 258, wherein the therapeutic agent for inflammation comprises a cyclooxygenase type 1 inhibitor, a cyclooxygenase type 2 inhibitor, a small molecule modulator of p38-MAPK, a small molecule modulator of intracellular molecules involved in inflammation pathways, or mixtures thereof.

260. A method according to any one of Claims 174-259, that is used to treat or prevent a disease or the complications of a disease or condition selected from hypercholesterolemia, heart disease, metabolic syndrome, diabetes, coronary heart disease, stroke, cardiovascular diseases, Alzheimer's disease, dyslipidemias, elevated total serum cholesterol, elevated LDL, elevated triglycerides, elevated VLDL, low HDL, metabolic syndrome, diabetes mellitus, familial combined hyperlipidemia, familial hypertriglyceridemia, familial hypercholesterolemias, including heterozygous hypercholesterolemia, homozygous hypercholesterolemia, familial defective apoplipoprotein B-100; polygenic hypercholesterolemia; remnant removal disease, hepatic lipase deficiency; dyslipidemia secondary to any of the following: dietary indiscretion, hypothyroidism, drugs including estrogen and progestin therapy, beta-blockers, and thiazide diuretics; nephrotic syndrome, chronic renal failure, Cushing's syndrome, primary biliary cirrhosis, glycogen

storage diseases, hepatoma, cholestasis, acromegaly, insulinoma, isolated growth hormone deficiency, and alcohol-induced hypertriglyceridemia. atherosclerotic diseases such as coronary heart disease, coronary artery disease, peripheral arterial disease, stroke (ischaemic and hemorrhagic), angina pectoris, cerebrovascular disease and acute coronary syndrome, myocardial infarction, reducing the risk of: nonfatal heart attacks, fatal and non-fatal strokes, certain types of heart surgery, hospitalization for heart failure, chest pain in patients with heart disease, and/or cardiovascular events because of established heart disease such as prior heart attack, prior heart surgery, and/or chest pain with evidence of clogged arteries, or the risk of recurrent cardiovascular events.

261. An isolated nucleic acid or nucleic acids which encode for and when expressed in a suitable host cell result in the expression of an anti-human PCSK9 antibody or antibody fragment or the variable heavy or light chain thereof, wherein said antibody or antibody fragment encoded by said nucleic acid or nucleic acids competes with and/or specifically binds to the same or overlapping epitope(s) on human PCSK9 as an anti-human PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.

262. The nucleic acid or nucleic acids of Claim 261, wherein said expressed antibody or antibody fragment specifically binds to the same or overlapping epitope(s) on human PCSK9 as an anti-human PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.

263. The nucleic acid or nucleic acids of Claim 261, wherein said epitope(s) can be identified is a binding assay that detects the binding of an anti-human PCSK9 antibody to one or more peptides in a library of 10-15-mer peptides which are overlapping fragments that correspond to all or substantially all of the length of the human PCSK9 polypeptide.

264. The nucleic acid or nucleic acids of Claim 263, wherein said binding assay is a Western immunoblot assay which detects specific binding of the antibody or antibody fragment to one or more of said 10-15 mer peptides in said library by the use of a chemiluminescent label which emits a detectable chemiluminescent signal when specific binding of said antibody or antibody fragment to a peptide in said library occurs.
265. The nucleic acid or nucleic acids of Claim 261, wherein said expressed antibody or antibody fragment encoded by said nucleic acid or nucleic acids contains at least 2 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.
266. The nucleic acid or nucleic acids of Claim 261, wherein said expressed anti-human anti- PCSK9 antibody or antibody fragment encoded by said nucleic acid or nucleic acids contains at least 3 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24
267. The nucleic acid or nucleic acids of Claim 261, wherein said expressed anti-human PCSK9 antibody or antibody fragment encoded by said nucleic acid or nucleic acids contains at least 4 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24
268. The nucleic acid or nucleic acids of Claim 261, wherein said expressed anti-human PCSK9 antibody or antibody fragment encoded by said nucleic acid or nucleic acids contains at least 5 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.

269. The nucleic acid or nucleic acids of Claim 261, wherein said expressed antibody or antibody fragment encoded by said nucleic acid or nucleic acids contains all 6 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of Ab1, Ab2, Ab3, Ab4, Ab5, Ab6, Ab7, Ab8, Ab9, Ab10, Ab11, Ab12, Ab13, Ab14, Ab15, Ab16, Ab17, Ab18, Ab19, Ab20, Ab21, Ab22, Ab23 and Ab24.

270. The nucleic acid or nucleic acids of Claim 261, wherein said expressed anti-human PCSK9 antibody or antibody fragment encoded by said nucleic acid or nucleic acids contains (a)a variable heavy chain comprising a CDR1 sequence selected from the group consisting of SEQ ID NO: 4, SEQ ID NO: 44, SEQ ID NO: 84, SEQ ID NO: 124, SEQ ID NO: 164, SEQ ID NO: 204, SEQ ID NO: 244, SEQ ID NO: 284, SEQ ID NO: 324, SEQ ID NO: 364, SEQ ID NO: 404, SEQ ID NO: 444, SEQ ID NO: 484, SEQ ID NO: 524, SEQ ID NO: 564, SEQ ID NO: 604, SEQ ID NO: 644, SEQ ID NO: 684, SEQ ID NO: 724, SEQ ID NO: 764, SEQ ID NO: 804, SEQ ID NO: 844, SEQ ID NO: 884, and SEQ ID NO: 924; a CDR2 sequence selected from the group consisting of SEQ ID NO: 6, SEQ ID NO: 46, SEQ ID NO: 86, SEQ ID NO: 126, SEQ ID NO: 166, SEQ ID NO: 206, SEQ ID NO: 246, SEQ ID NO: 286, SEQ ID NO: 326, SEQ ID NO: 366, SEQ ID NO: 406, SEQ ID NO: 446, SEQ ID NO: 486, SEQ ID NO: 526, SEQ ID NO: 566, SEQ ID NO: 606, SEQ ID NO: 646, SEQ ID NO: 686, SEQ ID NO: 726, SEQ ID NO: 766, SEQ ID NO: 806, SEQ ID NO: 846, SEQ ID NO: 886, and SEQ ID NO: 926; and a CDR3 sequence selected from the group consisting of SEQ ID NO: 8, SEQ ID NO: 48, SEQ ID NO: 88, SEQ ID NO: 128, SEQ ID NO: 168, SEQ ID NO: 208, SEQ ID NO: 248, SEQ ID NO: 288, SEQ ID NO: 328, SEQ ID NO: 368, SEQ ID NO: 408, SEQ ID NO: 448, SEQ ID NO: 488, SEQ ID NO: 528, SEQ ID NO: 568, SEQ ID NO: 608, SEQ ID NO: 648, SEQ ID NO: 688, SEQ ID NO: 728, SEQ ID NO: 768, SEQ ID NO: 808, SEQ ID NO: 848, SEQ ID NO: 888, and SEQ ID NO: 928; and/or

(b) a variable light chain comprising a CDR1 sequence selected from the group consisting of SEQ ID NO: 24, SEQ ID NO: 64, SEQ ID NO: 104, SEQ ID NO:

144, SEQ ID NO: 184, SEQ ID NO: 224, SEQ ID NO: 264, SEQ ID NO: 304, SEQ ID NO: 344, SEQ ID NO: 384, SEQ ID NO: 424, SEQ ID NO: 464, SEQ ID NO: 504, SEQ ID NO: 544, SEQ ID NO: 584, SEQ ID NO: 624, SEQ ID NO: 664, SEQ ID NO: 704, SEQ ID NO: 744, SEQ ID NO: 784, SEQ ID NO: 824, SEQ ID NO: 864, SEQ ID NO: 904, and SEQ ID NO: 944; a CDR2 sequence selected from the group consisting of SEQ ID NO: 26, SEQ ID NO: 66, SEQ ID NO: 106, SEQ ID NO: 146, SEQ ID NO: 186, SEQ ID NO: 226, SEQ ID NO: 266, SEQ ID NO: 306, SEQ ID NO: 346, SEQ ID NO: 386, SEQ ID NO: 426, SEQ ID NO: 466, SEQ ID NO: 506, SEQ ID NO: 546, SEQ ID NO: 586, SEQ ID NO: 626, SEQ ID NO: 666, SEQ ID NO: 706, SEQ ID NO: 746, SEQ ID NO: 786, SEQ ID NO: 826, SEQ ID NO: 866, SEQ ID NO: 906, and SEQ ID NO: 946; and a CDR3 sequence selected from the group consisting of SEQ ID NO: 28, SEQ ID NO: 68, SEQ ID NO: 108, SEQ ID NO: 148, SEQ ID NO: 188, SEQ ID NO: 228, SEQ ID NO: 268, SEQ ID NO: 308, SEQ ID NO: 348, SEQ ID NO: 388, SEQ ID NO: 428, SEQ ID NO: 468, SEQ ID NO: 508, SEQ ID NO: 548, SEQ ID NO: 588, SEQ ID NO: 628, SEQ ID NO: 668, SEQ ID NO: 708, SEQ ID NO: 748, SEQ ID NO: 788, SEQ ID NO: 828, SEQ ID NO: 868, SEQ ID NO: 908, and SEQ ID NO: 948, with the further proviso that one or two residues of any of the afore-identified CDR polypeptides may be substituted with another amino acid.

271. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 4, the CDR2 sequence of SEQ ID NO: 6, and the CDR3 sequence of SEQ ID NO: 8; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 24, the CDR2 sequence of SEQ ID NO: 26, and the CDR3 sequence of SEQ ID NO: 28.

272. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 44, the CDR2 sequence of SEQ ID NO: 46, and the CDR3 sequence of SEQ ID NO: 48; and/or the variable light chain comprises

the CDR1 sequence of SEQ ID NO: 64, the CDR2 sequence of SEQ ID NO: 66, and the CDR3 sequence of SEQ ID NO: 68.

273. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 84, the CDR2 sequence of SEQ ID NO: 86, and the CDR3 sequence of SEQ ID NO: 88; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 104, the CDR2 sequence of SEQ ID NO: 106, and the CDR3 sequence of SEQ ID NO: 108.

274. The nucleic acid or nucleic acids of any one of Claims 261 -270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 124, the CDR2 sequence of SEQ ID NO: 126, and the CDR3 sequence of SEQ ID NO: 128; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 144, the CDR2 sequence of SEQ ID NO: 146, and the CDR3 sequence of SEQ ID NO: 148.

275. The nucleic acid or nucleic acids of any one of Claims 261 -270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 164, the CDR2 sequence of SEQ ID NO: 166, and the CDR3 sequence of SEQ ID NO: 168; and the variable light chain comprises the CDR1 sequence of SEQ ID NO: 184, the CDR2 sequence of SEQ ID NO: 186, and the CDR3 sequence of SEQ ID NO: 188.

276. The nucleic acid or nucleic acids of any one of Claims 261 -270, wherein said expressed anti-human PCSK9 antibody or antibody fragment contains a variable heavy chain that comprises the CDR1 sequence of SEQ ID NO: 204, the CDR2 sequence of SEQ ID NO: 206, and the CDR3 sequence of SEQ ID NO: 208; and the variable light chain comprises the CDR1 sequence of SEQ ID NO: 224, the CDR2 sequence of SEQ ID NO: 226, and the CDR3 sequence of SEQ ID NO: 228.

277. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 244, the CDR2 sequence of SEQ ID NO: 246,

and the CDR3 sequence of SEQ ID NO: 248; and the variable light chain comprises the CDR1 sequence of SEQ ID NO: 264, the CDR2 sequence of SEQ ID NO: 266, and the CDR3 sequence of SEQ ID NO: 268.

278. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 284, the CDR2 sequence of SEQ ID NO: 286, and the CDR3 sequence of SEQ ID NO: 288; and the variable light chain comprises the CDR1 sequence of SEQ ID NO: 304, the CDR2 sequence of SEQ ID NO: 306, and the CDR3 sequence of SEQ ID NO: 308.

279. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 324, the CDR2 sequence of SEQ ID NO: 326, and the CDR3 sequence of SEQ ID NO: 328; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 344, the CDR2 sequence of SEQ ID NO: 346, and the CDR3 sequence of SEQ ID NO: 348.

280. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 364, the CDR2 sequence of SEQ ID NO: 366, and the CDR3 sequence of SEQ ID NO: 368; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 384, the CDR2 sequence of SEQ ID NO: 386, and the CDR3 sequence of SEQ ID NO: 388.

281. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 404, the CDR2 sequence of SEQ ID NO: 406, and the CDR3 sequence of SEQ ID NO: 408; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 424, the CDR2 sequence of SEQ ID NO: 426, and the CDR3 sequence of SEQ ID NO: 428.

282. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 444, the CDR2 sequence of SEQ ID NO: 446,

and the CDR3 sequence of SEQ ID NO: 448; and the variable light chain comprises the CDR1 sequence of SEQ ID NO: 464, the CDR2 sequence of SEQ ID NO: 466, and the CDR3 sequence of SEQ ID NO: 468.

283. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 484, the CDR2 sequence of SEQ ID NO: 486, and the CDR3 sequence of SEQ ID NO: 488; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 504, the CDR2 sequence of SEQ ID NO: 506, and the CDR3 sequence of SEQ ID NO: 508.

284. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 524, the CDR2 sequence of SEQ ID NO: 526, and the CDR3 sequence of SEQ ID NO: 528; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 544, the CDR2 sequence of SEQ ID NO: 546, and the CDR3 sequence of SEQ ID NO: 548.

285. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 564, the CDR2 sequence of SEQ ID NO: 566, and the CDR3 sequence of SEQ ID NO: 568; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 584, the CDR2 sequence of SEQ ID NO: 586, and the CDR3 sequence of SEQ ID NO: 588.

286. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 604, the CDR2 sequence of SEQ ID NO: 606, and the CDR3 sequence of SEQ ID NO: 608; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 624, the CDR2 sequence of SEQ ID NO: 626, and the CDR3 sequence of SEQ ID NO: 628.

287. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 644, the CDR2 sequence of SEQ ID NO: 646,

and the CDR3 sequence of SEQ ID NO: 648; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 664, the CDR2 sequence of SEQ ID NO: 666, and the CDR3 sequence of SEQ ID NO: 668.

288. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 684, the CDR2 sequence of SEQ ID NO: 686, and the CDR3 sequence of SEQ ID NO: 688; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 704, the CDR2 sequence of SEQ ID NO: 706, and the CDR3 sequence of SEQ ID NO: 708.

289. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 724, the CDR2 sequence of SEQ ID NO: 726, and the CDR3 sequence of SEQ ID NO: 728; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 744, the CDR2 sequence of SEQ ID NO: 746, and the CDR3 sequence of SEQ ID NO: 748.

290. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 764, the CDR2 sequence of SEQ ID NO: 766, and the CDR3 sequence of SEQ ID NO: 768; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 784, the CDR2 sequence of SEQ ID NO: 786, and the CDR3 sequence of SEQ ID NO: 788.

291. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 804, the CDR2 sequence of SEQ ID NO: 806, and the CDR3 sequence of SEQ ID NO: 808; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 824, the CDR2 sequence of SEQ ID NO: 826, and the CDR3 sequence of SEQ ID NO: 828.

292. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 844, the CDR2 sequence of SEQ ID NO: 846,

and the CDR3 sequence of SEQ ID NO: 848; and/or the variable light chain comprises the CDR1 sequence of SEQ ID NO: 864, the CDR2 sequence of SEQ ID NO: 866, and the CDR3 sequence of SEQ ID NO: 868.

293. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 884, the CDR2 sequence of SEQ ID NO: 886, and the CDR3 sequence of SEQ ID NO: 888; and/or the variable light chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 904, the CDR2 sequence of SEQ ID NO: 906, and the CDR3 sequence of SEQ ID NO: 908.

294. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 924, the CDR2 sequence of SEQ ID NO: 926, and the CDR3 sequence of SEQ ID NO: 928; and/or the variable light chain encoded by said nucleic acid or nucleic acids comprises the CDR1 sequence of SEQ ID NO: 944, the CDR2 sequence of SEQ ID NO: 946, and the CDR3 sequence of SEQ ID NO: 948.

295. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 2 and/or the variable light chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 22.

296. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 2 and SEQ ID NO: 22, respectively.

297. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 42 and the variable light chain encoded by said nucleic acid or nucleic acids

comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 62.

298. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 42 and SEQ ID NO: 62, respectively.

299. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 82 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 102.

300. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 82 and SEQ ID NO: 102, respectively.

301. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 122 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 142.

302. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 122 and SEQ ID NO: 142, respectively.

303. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 162 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 182.

304. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 162 and SEQ ID NO: 182, respectively.
305. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 202 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 222.
306. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 202 and SEQ ID NO: 222, respectively.
307. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 242 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 262.
308. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 242 and SEQ ID NO: 262, respectively.
309. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 282 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 302.
310. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 282 and SEQ ID NO: 302, respectively.

311. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 322 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 342.
312. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 322 and SEQ ID NO: 342, respectively.
313. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 362 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 382.
314. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 362 and SEQ ID NO: 382, respectively.
315. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 402 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 422.
316. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 402 and SEQ ID NO: 422, respectively.
317. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:

442 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 462.

318. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 442 and SEQ ID NO: 462, respectively.

319. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 482 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 502.

320. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 482 and SEQ ID NO: 502, respectively.

321. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 522 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 542.

322. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 522 and SEQ ID NO: 542, respectively.

323. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 562 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 582.

324. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 562 and SEQ ID NO: 582, respectively.
325. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 602 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 622.
326. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 602 and SEQ ID NO: 622, respectively.
327. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 642 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 662.
328. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 642 and SEQ ID NO: 662, respectively.
329. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 682 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 702.
330. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 682 and SEQ ID NO: 702, respectively

331. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 722 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 742.
332. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 722 and SEQ ID NO: 742, respectively
333. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 762 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 782.
334. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 762 and SEQ ID NO: 782, respectively
335. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 802 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 822.
336. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 802 and SEQ ID NO: 822, respectively.
337. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:

842 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 862.

338. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 842 and SEQ ID NO: 862, respectively.

339. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 882 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 902.

340. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 882 and SEQ ID NO: 902, respectively.

341. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 922 and the variable light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 942.

342. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the variable heavy and light chains are each at least 90% identical to the variable heavy and light chains in SEQ ID NO: 922 and SEQ ID NO: 942, respectively.

343. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 1 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 21.

344. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 41 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 61.
345. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence is at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 81 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 101.
346. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 121 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 141.
347. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 161 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 181.
348. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 201 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 221.
349. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 241 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 261.

350. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 281 and the light chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 301.
351. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 321 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 341.
352. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 361 and the light chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 381.
353. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 401 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 421.
354. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 441 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 461.
355. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 481 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 501.

356. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 521 and the light chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 541.
357. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 561 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 581.
358. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 601 and the light chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 621.
359. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 641 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 661.
360. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises s a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 681 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 701.
361. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 721 and the light chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 741.

362. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 761 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 781.
363. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence that is at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 801 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 821.
364. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence that is at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 841 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 861.
365. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises a sequence that is at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 881 and the light chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 901.
366. The nucleic acid or nucleic acids of any one of Claims 261-270, wherein the heavy chain encoded by said nucleic acid or nucleic acids comprises SEQ ID NO: 921 and the light chain encoded by said nucleic acid or nucleic acids comprises a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 941.
367. The nucleic acid or nucleic acids of any one of Claims 261 -366, wherein the antibody or antibody fragment encoded by said nucleic acid or nucleic acids is

selected from the group consisting of chimeric, humanized, and human antibodies or antibody fragments.

368. The nucleic acid or nucleic acids of any one of Claims 261 -367, wherein the expressed antibody or antibody fragment encoded by said nucleic acid or nucleic acids is selected from the group consisting of scFvs, camelbodies, nanobodies, IgNAR, F_{ab} fragments, $F_{ab'}$ fragments, MetMabs, monovalent antibody fragments, and $F_{(ab')2}$ fragments.

369. The nucleic acid or nucleic acids of any one of Claims 261 -368, wherein the expressed antibody or antibody fragment encoded by said nucleic acid or nucleic acids substantially or entirely lacks N-glycosylation and/or O-glycosylation.

370. The nucleic acid or nucleic acids of any one of Claims 261 -369, wherein the expressed antibody or antibody fragment encoded by said nucleic acid or nucleic acids comprises a human constant domain.

371. The nucleic acid or nucleic acids of any one of Claims 261 -370, wherein the expressed antibody encoded by said nucleic acid or nucleic acids is an IgG1, IgG2, IgG3, or IgG4 antibody.

372. The nucleic acid or nucleic acids of any one of Claims 261 -371, wherein said nucleic acid or nucleic acids which encode said antibody or antibody fragment comprise a sequence encoding a VH and a VL region at least 80, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 12, SEQ ID NO: 32; SEQ ID NO: 52, SEQ ID NO: 72; SEQ ID NO: 92, SEQ ID NO: 112; SEQ ID NO: 132, SEQ ID NO: 152; SEQ ID NO: 172, SEQ ID NO: 192; SEQ ID NO: 212, SEQ ID NO: 232, SEQ ID NO: 252, SEQ ID NO: 272; SEQ ID NO: 292, SEQ ID NO: 312; SEQ ID NO: 332, SEQ ID NO: 352; SEQ ID NO: 372, SEQ ID NO: 392; SEQ ID NO: 412, SEQ ID NO: 432; SEQ ID NO: 452, SEQ ID NO: 472; SEQ ID NO: 492, SEQ ID NO: 512, SEQ ID NO: 532, SEQ ID NO: 552, SEQ ID NO: 572, SEQ ID NO: 592, SEQ ID NO: 612, SEQ ID NO: 632, SEQ ID NO: 652, SEQ ID NO: 672; SEQ ID NO: 692; SEQ ID NO: 712; SEQ ID NO: 732; SEQ ID NO: 752; SEQ ID NO: 772; SEQ ID NO: 792; SEQ ID NO: 812; SEQ ID NO: 832;

SEQ ID NO: 852; SEQ ID NO: 872; SEQ ID NO: 892; SEQ ID NO: 912; SEQ ID NO: 932; SEQ ID NO: 952; or a codon degenerate thereof.

373. A vector or vectors comprising the nucleic acid sequence or sequences of any of Claims 261-372.
374. A host cell comprising nucleic acid sequence or sequences of any of Claims 261-372 or a vector or vectors according to Claim 373.
375. The host cell of claim 374, wherein said host cell is a mammalian, bacterial, fungal, yeast, avian or insect cell.
376. The host cell of Claim 374, which comprises a filamentous fungi or a yeast.
377. The host cell of Claim 376, which comprises a filamentous fungi or yeast include Pichia pastoris, Pichia finlandica, Pichia trehalophila, Pichia koclamae, Pichia membranaefaciens, Pichia minuta (Ogataea minuta, Pichia lindneri), Pichia opuntiae, Pichia thermotolerans, Pichia salictaria, Pichia guercuum, Pichia pijperi, Pichia stiptis, Pichia methanolica, Pichia sp., Saccharomyces cerevisiae, Saccharomyces sp., Hansenula polymorpha, Kluyveromyces sp., Kluyveromyces lactis, Candida albicans, Aspergillus nidulans, Aspergillus niger, Aspergillus oryzae, Trichoderma reesei, Chrysosporium lucknowense, Fusarium sp., Fusarium gramineum, Fusarium venenatum, Physcomitrella patens and Neurospora crassa. Pichia sp., any Saccharomyces sp., Hansenula polymorpha, any Kluyveromyces sp., Candida albicans, any Aspergillus sp., Trichoderma reesei, Chrysosporium lucknowense, any Fusarium sp. and Neurospora crassa.
378. The host cell of Claim 377, wherein said host cell is a mammalian cell.
379. The host cell of Claim 378, wherein said host cell is a CHO, COS, BHK, myeloma, monkey kidney CV1 line transformed by SV40 (COS-7, ATCC CRL 1651); human embryonic kidney line (293 or 293 cells subcloned for growth in suspension culture), mouse sertoli cell; human lung cell; human liver cell, or a mouse mammary tumor cell.
380. The host cell of Claim 379, wherein the mammalian cell is a CHO cell.
381. The host cell of Claim 374, which is yeast cell belonging to the genus *Pichia*.
382. The host cell of Claim 381, which is a *Pichia pastoris*.

383. A method of making the antibody or antibody fragment according to any one of claims 1-132, by expressing nucleic acids which encode for the expression of said antibody or antibody fragment in a recombinant host cell.
384. The method of Claim 383 wherein the host cell is selected from a bacteria, yeast, fungi, insect cell, plant cell, avian cell, or mammalian cell.
385. The method of Claim 383, wherein the host cell is a yeast or a filamentous fungi, which may optimally be polyploidal.
386. The method of Claim 385, wherein said a yeast or a filamentous fungi include Pichia pastoris, Pichia finlandica, Pichia trehalophila, Pichia koclamae, Pichia membranaefaciens, Pichia minuta (Ogataea minuta, Pichia lindneri), Pichia opuntiae, Pichia thermotolerans, Pichia salictaria, Pichia guercuum, Pichia pijperi, Pichia stiptis, Pichia methanolica, Pichia sp., Saccharomyces cerevisiae, Saccharomyces sp., Hansenula polymorpha, Kluyveromyces sp., Kluyveromyces lactis, Candida albicans, Aspergillus nidulans, Aspergillus niger, Aspergillus oryzae, Trichoderma reesei, Chrysosporium lucknowense, Fusarium sp., Fusarium gramineum, Fusarium venenatum, Physcomitrella patens and Neurospora crassa. Pichia sp., any Saccharomyces sp., Hansenula polymorpha, any Kluyveromyces sp., Candida albicans, any Aspergillus sp., Trichoderma reesei, Chrysosporium lucknowense, any Fusarium sp. and Neurospora crassa.
387. The method of Claim 384, wherein said host cell is a mammalian cell.
388. The method of Claim 387, wherein said host cell is a CHO, COS, BHK, myeloma, monkey kidney CV1 line transformed by SV40 (COS-7, ATCC CRL 1651); human embryonic kidney line (293 or 293 cells subcloned for growth in suspension culture), mouse sertoli cell; human lung cell; human liver cell, or a mouse mammary tumor cell.
389. The method of Claim 388, wherein the mammalian cell is a CHO cell.
390. The method of 383, wherein the recombinant host cell is a polyploid yeast culture that stably expresses and secretes into the culture medium at least 10-25 mg/liter of said antibody or antibody fragment.

391. The method of Claim 390, wherein said polyploidal yeast is made by a method that comprises:

(i) introducing at least one expression vector containing one or more heterologous polynucleotides encoding said antibody operably linked to a promoter and a signal sequence into a haploid yeast cell;

(ii) producing by mating or spheroplast fusion a polyploidal yeast from said first and/or second haploid yeast cell;

(iii) selecting polyploidal yeast cells that stably express said antibody; and

(iv) producing stable polyploidal yeast cultures from said polyploidal yeast cells that stably express said antibody into the culture medium.

392. The method of claim 391, wherein said yeast genera is Pichia.

393. A therapeutic or diagnostic method that comprises the administration of a therapeutic or diagnostically effective amount of at least one antibody or antibody fragment according to any of Claims 1-133.

394. The method of claim 393, wherein the antibody or antibody fragment is administered by a means selected from buccal, epicutaneous, epidural, inhalation, intraarterial, intracardial, intracerebroventricular, intradermal, intramuscular, intranasal, intraocular, intraperitoneal, intraspinal, intrathecal, intravenous, oral, parenteral, rectally via an enema or suppository, subcutaneous, subdermal, sublingual, transdermal, and transmucosal.

395. The method of Claim 394, wherein the antibody or antibody fragment is administered by a means selected from subcutaneous, intravenous, intraarterial, intracardial, intracerebroventricular, intramuscular, intraperitoneal, intraspinal, intrathecal, and parenteral.

396. The method of Claim 394, wherein the antibody or antibody fragment is administered by subcutaneous means.

397. The method of Claim 394, wherein the antibody or antibody fragment is administered by intravenous means.

398. The method of Claim 394, wherein the antibody or antibody fragment is contained in a powder, liquid, gel, drop, or other means of administration.

399. A composition containing an antibody or antibody fragment according to any one of Claims 1-133, which is suitable for administration by a means selected from buccal, epicutaneous, epidural, inhalation, intraarterial, intracardial, intracerebroventricular, intradermal, intramuscular, intranasal, intraocular, intraperitoneal, intraspinal, intrathecal, intravenous, oral, parenteral, rectally via an enema or suppository, subcutaneous, subdermal, sublingual, transdermal, and transmucosal.
400. The composition of Claim 399, wherein the composition is administrable by a means selected from subcutaneous, intravenous, , intraarterial, intracardial, intracerebroventricular, intramuscular, intraperitoneal, intraspinal, intrathecal, and parenteral.
401. The composition of Claim 399, which is administrable by subcutaneous means.
402. The composition of Claim 399, which is administrable by intravenous means.
403. The composition of Claim 399, which comprises a powder, liquid, gel, drop, liposomal, or other dosage form.
404. A method of using an antibody or antibody fragment according to any one of Claims 1-132 to isolate, detect or purify PCSK9 in a sample.
405. A method of using an antibody or antibody fragment according to any one of Claims 1-132 to detect the levels of PCSK9 in vivo or ex vivo.
406. The method of Claim 405, which is used to assess whether a patient should be administered an anti-PCSK9 antibody or antibody fragment or another therapy.
407. The method of Claim 405, wherein the detection method is used to assess the efficacy of a treatment method the objective of which is to reduce cholesterol or alter lipid levels.

CLAIMS

What is claimed is:

1. An anti-human PCSK9 antibody or antibody fragment that competes for binding to human PCSK9 with and/or specifically binds to the same or overlapping epitope(s) on human PCSK9 as an anti-human PCSK9 antibody selected from the group consisting of:

i. an Ab1 antibody comprising the heavy chain of SEQ ID NO:1 and the light chain of SEQ ID NO:21;

ii. an Ab2 antibody comprising the heavy chain of SEQ ID NO:41 and the light chain of SEQ ID NO:61;

iii. an Ab3 antibody comprising the heavy chain of SEQ ID NO:81 and the light chain of SEQ ID NO:101;

iv. an Ab4 antibody comprising the heavy chain of SEQ ID NO:121 and the light chain of SEQ ID NO:141;

v. an Ab5 antibody comprising the heavy chain of SEQ ID NO:161 and the light chain of SEQ ID NO:181;

vi. an Ab6 antibody comprising the heavy chain of SEQ ID NO:201 and the light chain of SEQ ID NO:221;

vii. an Ab7 antibody comprising the heavy chain of SEQ ID NO:241 and the light chain of SEQ ID NO:261;

viii. an Ab8 antibody comprising the heavy chain of SEQ ID NO:281 and the light chain of SEQ ID NO:301;

ix. an Ab9 antibody comprising the heavy chain of SEQ ID NO:321 and the light chain of SEQ ID NO:341;

x. an Ab10 antibody comprising the heavy chain of SEQ ID NO:361 and the light chain of SEQ ID NO:381;

xi. an Ab11 antibody comprising the heavy chain of SEQ ID NO:401 and the light chain of SEQ ID NO:421;

xii. an Ab12 antibody comprising the heavy chain of SEQ ID NO:441 and the light chain of SEQ ID NO:461;

xiii. an Ab13 antibody comprising the heavy chain of SEQ ID NO:481 and the light chain of SEQ ID NO:501;

xiv. an Ab14 antibody comprising the heavy chain of SEQ ID NO:521 and the light chain of SEQ ID NO:541;

xv. an Ab15 antibody comprising the heavy chain of SEQ ID NO:561 and the light chain of SEQ ID NO:581;

xvi. an Ab16 antibody comprising the heavy chain of SEQ ID NO:601 and the light chain of SEQ ID NO:621;

xvii. an Ab17 antibody comprising the heavy chain of SEQ ID NO:641 and the light chain of SEQ ID NO:661;

xviii. an Ab18 antibody comprising the heavy chain of SEQ ID NO:681 and the light chain of SEQ ID NO:701;

xix. an Ab19 antibody comprising the heavy chain of SEQ ID NO:721 and the light chain of SEQ ID NO:741;

xx. an Ab20 antibody comprising the heavy chain of SEQ ID NO:761 and the light chain of SEQ ID NO:781;

xxi. an Ab21 antibody comprising the heavy chain of SEQ ID NO:801 and the light chain of SEQ ID NO:821;

xxii. an Ab22 antibody comprising the heavy chain of SEQ ID NO:841 and the light chain of SEQ ID NO:861;

xxiii. an Ab23 antibody comprising the heavy chain of SEQ ID NO:881 and the light chain of SEQ ID NO:901; and

xxiv. an Ab24 antibody comprising the heavy chain of SEQ ID NO:921 and the light chain of SEQ ID NO:941.

2. An anti-human PCSK9 antibody or antibody fragment, which specifically binds to the same or overlapping epitope(s) on human PCSK9 as an anti-human PCSK9 antibody selected from the group consisting of:

i. an Ab1 antibody comprising the heavy chain of SEQ ID NO:1 and the light chain of SEQ ID NO:21;

ii. an Ab2 antibody comprising the heavy chain of SEQ ID NO:41 and the light chain of SEQ ID NO:61;

iii. an Ab3 antibody comprising the heavy chain of SEQ ID NO:81 and the light chain of SEQ ID NO:101;

iv. an Ab4 antibody comprising the heavy chain of SEQ ID NO:121 and the light chain of SEQ ID NO:141;

v. an Ab5 antibody comprising the heavy chain of SEQ ID NO:161 and the light chain of SEQ ID NO:181;

vi. an Ab6 antibody comprising the heavy chain of SEQ ID NO:201 and the light chain of SEQ ID NO:221;

vii. an Ab7 antibody comprising the heavy chain of SEQ ID NO:241 and the light chain of SEQ ID NO:261;

viii. an Ab8 antibody comprising the heavy chain of SEQ ID NO:281 and the light chain of SEQ ID NO:301;

ix. an Ab9 antibody comprising the heavy chain of SEQ ID NO:321 and the light chain of SEQ ID NO:341;

x. an Ab10 antibody comprising the heavy chain of SEQ ID NO:361 and the light chain of SEQ ID NO:381;

xi. an Ab11 antibody comprising the heavy chain of SEQ ID NO:401 and the light chain of SEQ ID NO:421;

xii. an Ab12 antibody comprising the heavy chain of SEQ ID NO:441 and the light chain of SEQ ID NO:461;

xiii. an Ab13 antibody comprising the heavy chain of SEQ ID NO:481 and the light chain of SEQ ID NO:501;

xiv. an Ab14 antibody comprising the heavy chain of SEQ ID NO:521 and the light chain of SEQ ID NO:541;

xv. an Ab15 antibody comprising the heavy chain of SEQ ID NO:561 and the light chain of SEQ ID NO:581;

xvi. an Ab16 antibody comprising the heavy chain of SEQ ID NO:601 and the light chain of SEQ ID NO:621;

xvii. an Ab17 antibody comprising the heavy chain of SEQ ID NO:641 and the light chain of SEQ ID NO:661;

xviii. an Ab18 antibody comprising the heavy chain of SEQ ID NO:681 and the light chain of SEQ ID NO:701;

xix. an Ab19 antibody comprising the heavy chain of SEQ ID NO:721 and the light chain of SEQ ID NO:741;

xx. an Ab20 antibody comprising the heavy chain of SEQ ID NO:761 and the light chain of SEQ ID NO:781;

xxi. an Ab21 antibody comprising the heavy chain of SEQ ID NO:801 and the light chain of SEQ ID NO:821;

xxii. an Ab22 antibody comprising the heavy chain of SEQ ID NO:841 and the light chain of SEQ ID NO:861;

xxiii. an Ab23 antibody comprising the heavy chain of SEQ ID NO:881 and the light chain of SEQ ID NO:901; and

xxiv. an Ab24 antibody comprising the heavy chain of SEQ ID NO:921 and the light chain of SEQ ID NO:941.

3. The anti-human PCSK9 antibody or antibody fragment of Claim 2, wherein said epitope(s) are identified (a) using a binding assay that detects the binding of said anti-human PCSK9 antibody to one or more peptides in a library of 10-15-mer peptides which are overlapping peptide fragments of human PCSK9 that correspond to all or substantially all of the length of the human PCSK9 polypeptide, or (b) using a Western immunoblot assay which detects specific binding of the antibody or antibody fragment to one or more of said 10-15 mer peptides in said library by the use of a chemiluminescent label which emits a detectable chemiluminescent signal when specific binding of said antibody or antibody fragment to a peptide in said library occurs.

4. An anti-human PCSK9 antibody or antibody fragment according to Claim 1, wherein said antibody or antibody fragment contains at least 2, at least 3, at least 4, at least 5, or all 6 complementarity determining regions (CDRs) of an anti-PCSK9 antibody selected from the group consisting of:

i. an Ab1 antibody containing the CDR sequences of SEQ ID NOs:4, 6, 8, 24, 26, and 28;

ii. an Ab2 antibody containing the CDR sequences of SEQ ID NOs:44, 46, 48, 64, 66, and 68;

iii. an Ab3 antibody containing the CDR sequences of SEQ ID NOs:84, 86, 88, 104, 106, and 108;

iv. an Ab4 antibody containing the CDR sequences of SEQ ID NOs:124, 126, 128, 144, 146, and 148;

v. an Ab5 antibody containing the CDR sequences of SEQ ID NOs:164, 166, 168, 184, 186, and 188;

vi. an Ab6 antibody containing the CDR sequences of SEQ ID NOs:204, 206, 208, 224, 226, and 228;

vii. an Ab7 antibody containing the CDR sequences of SEQ ID NOs:244, 246, 248, 264, 266, and 268;

viii. an Ab8 antibody containing the CDR sequences of SEQ ID NOs:284, 286, 288, 304, 306, and 308;

ix. an Ab9 antibody containing the CDR sequences of SEQ ID NOs:324, 326, 328, 344, 346, and 348;

x. an Ab10 antibody containing the CDR sequences of SEQ ID NOs:364, 366, 368, 384, 386, and 388;

xi. an Ab11 antibody containing the CDR sequences of SEQ ID NOs:404, 406, 408, 424, 426, and 428;

xii. an Ab12 antibody containing the CDR sequences of SEQ ID NOs:444, 446, 448, 464, 466, and 468;

xiii. an Ab13 antibody containing the CDR sequences of SEQ ID NOs:484, 486, 488, 504, 506, and 508;

xiv. an Ab14 antibody containing the CDR sequences of SEQ ID NOs:524, 526, 528, 544, 546, and 548;

xv. an Ab15 antibody containing the CDR sequences of SEQ ID NOs:564, 566, 568, 584, 586, and 588;

xvi. an Ab16 antibody containing the CDR sequences of SEQ ID NOs:604, 606, 608, 624, 626, and 628;

xvii. an Ab17 antibody containing the CDR sequences of SEQ ID NOs:644, 646, 648, 664, 666, and 668;

xviii. an Ab18 antibody containing the CDR sequences of SEQ ID NOs:684, 686, 688, 704, 706, and 708;

xix. an Ab19 antibody containing the CDR sequences of SEQ ID NOs:724, 726, 728, 744, 746, and 748;

xx. an Ab20 antibody containing the CDR sequences of SEQ ID NOs:764, 766, 768, 784, 786, and 788;

xxi. an Ab21 antibody containing the CDR sequences of SEQ ID NOs:804, 806, 808, 824, 826, and 828;

xxii. an Ab22 antibody containing the CDR sequences of SEQ ID NOs:844, 846, 848, 864, 866, and 868;

xxiii. an Ab23 antibody containing the CDR sequences of SEQ ID NOs:884, 886, 888, 904, 906, and 908; and

xxiv. an Ab24 antibody containing the CDR sequences of SEQ ID NOs:924, 926, 928, 944, 946, and 948.

5. An anti-human PCSK9 antibody or antibody fragment according to any one of Claims 1-4, wherein said antibody or antibody fragment contains (a) a variable heavy chain comprising a CDR1 sequence selected from the group consisting of SEQ ID NO: 4, SEQ ID NO: 44, SEQ ID NO: 84, SEQ ID NO: 124, SEQ ID NO: 164, SEQ ID NO: 204, SEQ ID NO: 244, SEQ ID NO: 284, SEQ ID NO: 324, SEQ ID NO: 364, SEQ ID NO: 404, SEQ ID NO: 444, SEQ ID NO: 484, SEQ ID NO: 524, SEQ ID NO: 564, SEQ ID NO: 604, SEQ ID NO: 644, SEQ ID NO: 684, SEQ ID NO: 724, SEQ ID NO: 764, SEQ ID NO: 804, SEQ ID NO: 844, SEQ ID NO: 884, and SEQ ID NO: 924; a CDR2 sequence selected from the group consisting of SEQ ID NO: 6, SEQ ID NO: 46, SEQ ID NO: 86, SEQ ID NO: 126, SEQ ID NO: 166, SEQ ID NO: 206, SEQ ID NO: 246, SEQ ID NO: 286, SEQ ID NO: 326, SEQ ID NO: 366, SEQ ID NO: 406, SEQ ID NO: 446, SEQ ID NO: 486, SEQ ID NO: 526, SEQ ID NO: 566, SEQ ID NO: 606, SEQ ID NO: 646, SEQ ID NO: 686, SEQ ID NO: 726, SEQ ID NO: 766, SEQ ID NO: 806, SEQ ID NO: 846, SEQ ID NO: 886, and SEQ ID NO: 926; and a CDR3 sequence selected from the group consisting of SEQ ID NO: 8, SEQ ID NO: 48, SEQ ID NO: 88, SEQ ID NO: 128, SEQ ID NO: 168, SEQ ID NO: 208, SEQ ID NO: 248, SEQ ID NO: 288, SEQ ID NO: 328, SEQ ID NO: 368, SEQ ID NO: 408, SEQ ID NO: 448, SEQ ID NO: 488, SEQ ID NO: 528, SEQ ID NO: 568, SEQ ID NO: 608, SEQ ID NO: 648, SEQ ID NO: 688, SEQ ID NO: 728, SEQ ID NO: 768, SEQ ID NO: 808, SEQ ID NO: 848, SEQ ID NO: 888, and SEQ ID NO: 928; and/or

(b) a variable light chain comprising a CDR1 sequence selected from the group consisting of SEQ ID NO: 24, SEQ ID NO: 64, SEQ ID NO: 104, SEQ ID NO: 144, SEQ ID NO: 184, SEQ ID NO: 224, SEQ ID NO: 264, SEQ ID NO: 304, SEQ ID NO: 344, SEQ ID NO: 384, SEQ ID NO: 424, SEQ ID NO: 464, SEQ ID NO: 504, SEQ ID NO: 544, SEQ ID NO: 584, SEQ ID NO: 624, SEQ ID NO: 664, SEQ ID NO: 704, SEQ ID NO: 744, SEQ ID NO: 784, SEQ ID NO: 824, SEQ ID NO: 864, SEQ ID NO: 904, and SEQ ID NO: 944; a CDR2 sequence selected from the group consisting of SEQ ID NO: 26, SEQ ID NO: 66, SEQ ID NO: 106, SEQ ID NO: 146, SEQ ID NO: 186, SEQ ID NO: 226, SEQ ID NO: 266, SEQ ID NO: 306, SEQ ID NO: 346, SEQ ID NO: 386, SEQ ID NO: 426, SEQ ID NO: 466, SEQ ID NO: 506, SEQ ID NO: 546, SEQ ID NO: 586, SEQ ID NO: 626, SEQ ID NO: 666, SEQ ID NO: 706, SEQ ID NO: 746, SEQ ID NO: 786, SEQ ID NO: 826, SEQ ID NO: 866, SEQ ID NO: 906, and SEQ ID NO: 946; and a CDR3 sequence selected from the group consisting of SEQ ID NO: 28, SEQ ID NO: 68, SEQ ID NO: 108, SEQ ID NO: 148, SEQ ID NO: 188, SEQ ID NO: 228, SEQ ID NO: 268, SEQ ID NO: 308, SEQ ID NO: 348, SEQ ID NO: 388, SEQ ID NO: 428, SEQ ID NO: 468, SEQ ID NO: 508, SEQ ID NO: 548, SEQ ID NO: 588, SEQ ID NO: 628, SEQ ID NO: 668, SEQ ID NO: 708, SEQ ID NO: 748, SEQ ID NO: 788, SEQ ID NO: 828, SEQ ID NO: 868, SEQ ID NO: 908, and SEQ ID NO: 948, with the further proviso that one or two residues of any of the afore-identified CDR polypeptides may be substituted with another amino acid, preferably a conservative amino acid substitution.

6. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-5, wherein the antibody comprises:

i. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 4, the CDR2 sequence of SEQ ID NO: 6, and the CDR3 sequence of SEQ ID NO: 8; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 24, the CDR2 sequence of SEQ ID NO: 26, and the CDR3 sequence of SEQ ID NO: 28;

ii. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 44, the CDR2 sequence of SEQ ID NO: 46, and the CDR3 sequence of SEQ ID NO: 48; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 64, the CDR2 sequence of SEQ ID NO: 66, and the CDR3 sequence of SEQ ID NO: 68;

iii. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 84, the CDR2 sequence of SEQ ID NO: 86, and the CDR3 sequence of SEQ ID NO: 88; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 104, the CDR2 sequence of SEQ ID NO: 106, and the CDR3 sequence of SEQ ID NO: 108;

iv. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 124, the CDR2 sequence of SEQ ID NO: 126, and the CDR3 sequence of SEQ ID NO: 128; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 144, the CDR2 sequence of SEQ ID NO: 146, and the CDR3 sequence of SEQ ID NO: 148;

v. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 164, the CDR2 sequence of SEQ ID NO: 166, and the CDR3 sequence of SEQ ID NO: 168; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 184, the CDR2 sequence of SEQ ID NO: 186, and the CDR3 sequence of SEQ ID NO: 188;

vi. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 204, the CDR2 sequence of SEQ ID NO: 206, and the CDR3 sequence of SEQ ID NO: 208; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 224, the CDR2 sequence of SEQ ID NO: 226, and the CDR3 sequence of SEQ ID NO: 228;

vii. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 244, the CDR2 sequence of SEQ ID NO: 246, and the CDR3 sequence of SEQ ID NO: 248; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 264, the CDR2 sequence of SEQ ID NO: 266, and the CDR3 sequence of SEQ ID NO: 268;

viii. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 284, the CDR2 sequence of SEQ ID NO: 286, and the CDR3 sequence of SEQ ID NO: 288; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 304, the CDR2 sequence of SEQ ID NO: 306, and the CDR3 sequence of SEQ ID NO: 308;

ix. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 324, the CDR2 sequence of SEQ ID NO: 326, and the CDR3 sequence of SEQ ID NO: 328; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 344, the CDR2 sequence of SEQ ID NO: 346, and the CDR3 sequence of SEQ ID NO: 348;

x. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 364, the CDR2 sequence of SEQ ID NO: 366, and the CDR3 sequence of SEQ ID NO: 368; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 384, the CDR2 sequence of SEQ ID NO: 386, and the CDR3 sequence of SEQ ID NO: 388;

xi. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 404, the CDR2 sequence of SEQ ID NO: 406, and the CDR3 sequence of SEQ ID NO: 408; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 424, the CDR2 sequence of SEQ ID NO: 426, and the CDR3 sequence of SEQ ID NO: 428;

xii. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 444, the CDR2 sequence of SEQ ID NO: 446, and the CDR3 sequence of SEQ ID NO: 448; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 464, the CDR2 sequence of SEQ ID NO: 466, and the CDR3 sequence of SEQ ID NO: 468;

xiii. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 484, the CDR2 sequence of SEQ ID NO: 486, and the CDR3 sequence of SEQ ID NO: 488; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 504, the CDR2 sequence of SEQ ID NO: 506, and the CDR3 sequence of SEQ ID NO: 508;

xiv. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 524, the CDR2 sequence of SEQ ID NO: 526, and the CDR3 sequence of SEQ ID NO: 528; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 544, the CDR2 sequence of SEQ ID NO: 546, and the CDR3 sequence of SEQ ID NO: 548;

xv. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 564, the CDR2 sequence of SEQ ID NO: 566, and the CDR3 sequence of SEQ ID NO: 568; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 584, the CDR2 sequence of SEQ ID NO: 586, and the CDR3 sequence of SEQ ID NO: 588;

xvi. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 604, the CDR2 sequence of SEQ ID NO: 606, and the CDR3 sequence of SEQ ID NO: 608; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 624, the CDR2 sequence of SEQ ID NO: 626, and the CDR3 sequence of SEQ ID NO: 628;

xvii. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 644, the CDR2 sequence of SEQ ID NO: 646, and the CDR3 sequence of SEQ ID NO: 648; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 664, the CDR2 sequence of SEQ ID NO: 666, and the CDR3 sequence of SEQ ID NO: 668;

xviii. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 684, the CDR2 sequence of SEQ ID NO: 686, and the CDR3 sequence of SEQ ID NO: 688; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 704, the CDR2 sequence of SEQ ID NO: 706, and the CDR3 sequence of SEQ ID NO: 708;

xix. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 724, the CDR2 sequence of SEQ ID NO: 726, and the CDR3 sequence of SEQ ID NO: 728; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 744, the CDR2 sequence of SEQ ID NO: 746, and the CDR3 sequence of SEQ ID NO: 748

xx. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 764, the CDR2 sequence of SEQ ID NO: 766, and the CDR3 sequence of SEQ ID NO: 768; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 784, the CDR2 sequence of SEQ ID NO: 786, and the CDR3 sequence of SEQ ID NO: 788;

xxi. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 804, the CDR2 sequence of SEQ ID NO: 806, and the CDR3 sequence of SEQ ID NO: 808; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 824, the CDR2 sequence of SEQ ID NO: 826, and the CDR3 sequence of SEQ ID NO: 828;

xxii. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 844, the CDR2 sequence of SEQ ID NO: 846, and the CDR3 sequence of SEQ ID NO: 848; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 864, the CDR2 sequence of SEQ ID NO: 866, and the CDR3 sequence of SEQ ID NO: 868;

xxiii. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 884, the CDR2 sequence of SEQ ID NO: 886, and the CDR3 sequence of SEQ ID NO: 888; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 904, the CDR2 sequence of SEQ ID NO: 906, and the CDR3 sequence of SEQ ID NO: 908;

xxiv. a variable heavy chain comprising the CDR1 sequence of SEQ ID NO: 924, the CDR2 sequence of SEQ ID NO: 926, and the CDR3 sequence of SEQ ID NO: 928; and/or a variable light chain comprising the CDR1 sequence of SEQ ID NO: 944, the CDR2 sequence of SEQ ID NO: 946, and the CDR3 sequence of SEQ ID NO: 948.

7. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-5, wherein the variable heavy chain of the antibody comprises:

i. a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 2, 42, 82, 122, 162, 202, 242, 282, 322, 362, 402, 442, 482, 522, 562, 602, 642, 682, 722, 762, 802, 842, 882, or 922; or

ii. a sequence at least 90% identical to SEQ ID NO: 2, 42, 82, 122, 162, 202, 242, 282, 322, 362, 402, 442, 482, 522, 562, 602, 642, 682, 722, 762, 802, 842, 882, or 922;

and/or the variable light chain of the antibody comprises:

i. a sequence at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 22, 62, 102, 142, 182, 222, 262, 302, 342, 382, 422, 462, 502, 542, 582, 622, 662, 702, 742, 782, 822, 862, 902, or 942; or

ii. a sequence at least 90% identical to SEQ ID NO: 22, 62, 102, 142, 182, 222, 262, 302, 342, 382, 422, 462, 502, 542, 582, 622, 662, 702, 742, 782, 822, 862, 902, or 942.

8. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-5, wherein the antibody comprises:

i. an Ab1 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:2 and a variable light chain at least 90% identical to SEQ ID NO:22;

ii. an Ab2 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:42 and a variable light chain at least 90% identical to SEQ ID NO:62;

iii. an Ab3 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:82 and a variable light chain at least 90% identical to SEQ ID NO:102;

iv. an Ab4 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:122 and a variable light chain at least 90% identical to SEQ ID NO:142;

v. an Ab5 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:162 and a variable light chain at least 90% identical to SEQ ID NO:182;

vi. an Ab6 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:202 and a variable light chain at least 90% identical to SEQ ID NO:222;

vii. an Ab7 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:242 and a variable light chain at least 90% identical to SEQ ID NO:262;

viii. an Ab8 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:282 and a variable light chain at least 90% identical to SEQ ID NO:302;

ix. an Ab9 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:322 and a variable light chain at least 90% identical to SEQ ID NO:342;

x. an Ab10 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:362 and a variable light chain at least 90% identical to SEQ ID NO:382;

xi. an Ab11 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:402 and a variable light chain at least 90% identical to SEQ ID NO:422;

xii. an Ab12 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:442 and a variable light chain at least 90% identical to SEQ ID NO:462;

xiii. an Ab13 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:482 and a variable light chain at least 90% identical to SEQ ID NO:502;

xiv. an Ab14 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:522 and a variable light chain at least 90% identical to SEQ ID NO:542;

xv. an Ab15 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:562 and a variable light chain at least 90% identical to SEQ ID NO:582;

xvi. an Ab16 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:602 and a variable light chain at least 90% identical to SEQ ID NO:622;

xvii. an Ab17 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:642 and a variable light chain at least 90% identical to SEQ ID NO:662;

xviii. an Ab18 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:682 and a variable light chain at least 90% identical to SEQ ID NO:702;

xix. an Ab19 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:722 and a variable light chain at least 90% identical to SEQ ID NO:742;

xx. an Ab20 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:762 and a variable light chain at least 90% identical to SEQ ID NO:782;

xxi. an Ab21 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:802 and a variable light chain at least 90% identical to SEQ ID NO:822;

xxii. an Ab22 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:842 and a variable light chain at least 90% identical to SEQ ID NO:862;

xxiii. an Ab23 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:882 and a variable light chain at least 90% identical to SEQ ID NO:902; or

xxiv. an Ab24 antibody comprising a variable heavy chain at least 90% identical to SEQ ID NO:922 and a variable light chain at least 90% identical to SEQ ID NO:942.

9. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-5, wherein the antibody comprises:

i. an Ab1 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:1 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:21;

ii. an Ab2 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:41 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:61;

iii. an Ab3 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:81 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:101;

iv. an Ab4 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:121 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:141;

v. an Ab5 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:161 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:181;

vi. an Ab6 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:201 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:221;

vii. an Ab7 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:241 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:261;

viii. an Ab8 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:281 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:301;

ix. an Ab9 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:321 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:341;

x. an Ab10 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:361 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:381;

xi. an Ab11 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:401 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:421;

xii. an Ab12 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:441 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:461;

xiii. an Ab13 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:481 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:501;

xiv. an Ab14 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:521 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:541;

xv. an Ab15 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:561 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:581;

xvi. an Ab16 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:601 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:621;

xvii. an Ab17 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:641 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:661;

xviii. an Ab18 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:681 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:701;

xix. an Ab19 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:721 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:741;

xx. an Ab20 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:761 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:781;

xxi. an Ab21 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:801 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:821;

xxii. an Ab22 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:841 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:861;

xxiii. an Ab23 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:881 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:901; or

xxiv. an Ab24 antibody comprising a heavy chain at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:921 and a light chain at least at least 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:941.

10. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-9, wherein the antibody or antibody fragment:

i. is selected from the group consisting of chimeric, humanized, and human antibodies or antibody fragments;

ii. is selected from the group consisting of scFvs, camelbodies, nanobodies, IgNAR, Fab fragments, Fab' fragments, MetMab like antibodies, monovalent antibody fragments, and F(ab')2 fragments;

iii. substantially or entirely lacks N-glycosylation and/or O-glycosylation;

iv. comprises a human constant domain;

v. comprises a human IgG1, IgG2, IgG3, or IgG4 constant domain;

vi. comprises an Fc region that has been modified to alter at least one of effector function, half-life, proteolysis, or glycosylation;

vii. comprises an Fc region that contains one or more mutations that alters or eliminates N- and/or O-glycosylation.

viii. is a humanized antibody or antibody fragment.

ix. is directly or indirectly attached to a detectable label or therapeutic agent.

x. is attached to at least one effector moiety.

xi. is attached to at least one effector moiety comprising a chemical linker.

xii. is attached to one or more detectable moieties.

xiii. is attached to one or more detectable moieties comprising a fluorescent dye, enzyme, substrate, bioluminescent material, radioactive material, chemiluminescent moiety, or mixtures thereof.

xiv. is attached to one or more functional moieties.

11. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-10, wherein the antibody or antibody fragment:

i. binds to PCSK9 with a dissociation constant (Kd) of less than or equal to 10^{-2} M, 5×10^{-3} M, 10^{-3} M, 5×10^{-4} M, 10^{-4} M, 5×10^{-5} M, 10^{-5} M, 5×10^{-6} M, 10^{-6} M, 5×10^{-7} M, 10^{-7} M, 5×10^{-8} M, 10^{-8} M, 5×10^{-9} M, 10^{-9} M, 5×10^{-10} M, 10^{-10} M, 5×10^{-11} M, 10^{-11} M, 5×10^{-12} M, 10^{-12} M, 5×10^{-13} M, or 10^{-13} M.

ii. binds to PCSK9 with a dissociation constant (Kd) of less than or equal to 10^{-11} M, 5×10^{-12} M, or 10^{-12} M.

iii. binds to PCSK9 with an off-rate of less than or equal to 10^{-4} S^{-1}, 5×10^{-5} S^{-1}, 10^{-5} S^{-1}, 5×10^{-6} S^{-1}, 10^{-6} S^{-1}, 5×10^{-7} S^{-1}, or 10^{-7} S^{-1}.

iv. inhibits or neutralizes at least one biological effect elicited by PCSK9 when administered to a human subject.

v. reduces serum cholesterol when administered to a human subject.

vi. is capable of inhibiting the binding of PCSK9 to LDLR.

vii. binds to PCSK9 with a K_D that is less than about 100 nM.

viii. binds to PCSK9 with a K_D that is less than about 10 nM.

ix. binds to PCSK9 with a K_D that is less than about 1 nM.

x. binds to PCSK9 with a K_D that is between about 1 and about 10 nM.

xi. binds to PCSK9 with a K_D that is between about 0.1 and about 1 nM.

xii. binds to PCSK9 with a K_D that is between 0.12 and 7.99 nM.

12. An anti-idiotypic antibody produced against an anti-human PCSK9 antibody or antibody fragment according to any one of Claims 1-11.

13. A composition suitable for therapeutic, prophylaxis, or a diagnostic use comprising a therapeutically, prophylactically or diagnostically effective amount of at least one antibody or antibody fragment according to any one of claims 1-12.

14. The composition of Claim 13, which wherein said composition:

i. is suitable for subcutaneous administration, intravenous administration, or topical administration; is lyophilized; further comprises a pharmaceutically acceptable diluent, carrier, solubilizer, emulsifier, preservative, or mixture thereof; further comprises another active agent; further comprises another active agent selected from the group consisting of the following: statins, ACE inhibitors, Angiotensin II receptor blockers (ARBs), Antiarrhythmics, Antiplatelet Drugs, aspirin, beta blockers, amiodarone, digoxin, aspirin, anti-clotting agents, digoxin, diuretics, heart failure drugs, vasodilators, blood thinners, other anti-cholesterol drugs such as holestyramine (Questran), gemfibrozil (Lopid, Gemcor), Omacor, pantethine, anti-hypertensives, antidiabetigenic drugs, Meglitinides, Sulfonylurea, and Thiazolidinediones; further comprises an ACE inhibitor is selected from: Capoten (captopril), Vasotec (enalapril), Prinivil, Zestril (lisinopril), Lotensin (benazepril), Monopril (fosinopril), Altace (ramipril), Accupril (quinapril), Aceon (perindopril), Mavik (trandolapril), Univasc (moexipril),

ii. further comprises an ARB is selected from: Cozaar (losartan), Diovan (valsartan), Avapro (irbesartan), Atacand (candesartan), and Micardis (telmisartan);

iii. further comprises an Antiarrhythmic is selected from Tambocor (flecainide), Procanbid (procainamide), Cordarone (amiodarone), and Betapace (sotalol);

iv. further comprises an anticlotting agent is selected from Anticlotting agents which may be used in combination with the subject anti-PCSK9 antibodies and antibody fragments include: Tissue plasminogen activator (TPA), Tenecteplase, Alteplase, Urokinase, Reteplase, Streptokinase, Fxl antagonist and anto-thrombotics;

v. further comprises a Beta blocker is selected from Sectral (acebutolol), Zebeta (bisoprolol), Brevibloc (esmolol), Inderal (propranolol), Tenormin (atenolol), Normodyne, Trandate (labetalol), Coreg (carvedilol), Lopressor, and Toprol-XL (metoprolol);

vi. further comprises a calcium channel blocker is selected from: Norvasc (amlodipine), Plendil (felodipine), Cardizem, Cardizem CD, Cardizem SR,

Dilacor XR, Diltia XT, Tiazac (diltiazem), Calan, Calan SR, Covera-HS, Isoptin, Isoptin SR, Verelan, Verelan PM (verapamil), Adalat, Adalat CC, Procardia, Procardia XL (nifedipine), Cardene, Cardene SR (nicardipine), Sular (nisoldipine), Vascor (bepridil), and Caduet which is a combination of a statin cholesterol drug and amlodipine;

vii. further comprises a diuretic is selected from: Lasix (furosemide), Bumex (bumetanide), Demadex (torsemide), Esidrix (hydrochlorothiazide), Zaroxolyn (metolazone), and Aldactone (spironolactone);

viii. further comprises a heart failure drug is selected from Dobutrex (dobutamine), and Primacor (milrinone);

ix. further comprises a vasodilator is selected from Dilatrate-SR, Iso-Bid, Isonate, Isorbid, Isordil, Isotrate, Sorbitrate (isosorbide dinitrate), IMDUR (isorbide mononitrate), and BiDil (hydralazine with isosorbide dinitrate;

x. further comprises a blood thinner is selected Warfarin (coumadin), Heparin, Lovenox, and Fragmin;

xi. further comprises another therapeutic agent that elevates the availability of LDLR protein;

xii. further comprises another therapeutic agent that blocks or inhibits cholesterol synthesis;

xiii. further comprises a statin;

xiv. further comprises a statin selected from atorvastatin, cerivastatin, fluvastatin, lovastatin, mevastatin, pitavastatin, pravastatin, rosuvastatin, simvastatin, or mixtures thereof;

xv. further comprises another therapeutic agent that elevates the HDL level, or an agent which decreases triglyceride levels, or both;

xvi. further comprises a fibrate;

xvii. further comprises a fibrate comprising bezafibrate, ciprofibrate, clofibrate, gemfibrozil, fenofibrate, or mixtures thereof;

xviii. further comprises a bile sequestering agent;

xix. further comprises a bile sequestering agent comprising cholestyramine, colesevelam, colestipol, or mixtures thereof;

xx. further comprises an agent that decreases cholesterol absorption in the intestines;

xxi. further comprises ezetimibe;

xxii. further comprises an agent that that inhibits hepatic triglyceride production, inhibits VLDL secretions, or both;

xxiii. further comprises acipimox;

xxiv. further comprises an agent that decreases lipid absorption in the intestines;

xxv. further comprises orlistat, lipstatin, or mixtures thereof;

xxvi. further comprises an agent that is an anti-hypertensive, an agent that treat angina, or both;

xxvii. further comprises an anti-hypertensive or anti-angina agent selected from a diuretic, an adrenergic receptor antagonist, a calcium channel blocker, a renin inhibitor, an ACE inhibitor, an angiotensin II receptor antagonist, an aldosterone antagonist, a vasodilator or an alpha-2 agonist;

xxviii. further comprises a diuretic, bumetanide, thacrynic acid, furosemide, torsemide, a thiazide diuretic, epitizide, hydrochlorothiazide, chlorothiazide, bendroflumethiazide, a thiazide-like diuretic, indapamide, chlorthalidone, metolazone, a potassium-sparing diuretic, amiloride, triamterene, spironolactone, the adrenergic receptor antagonists, beta blockers, atenolol, metoprolol, nadolol, oxprenolol, pindolol, propranolol, timolol, the alpha blockers, doxazosin, phentolamine, indoramin, phenoxybenzamine, prazosin, terazosin, tolazoline, mixed alpha + beta blockers, bucindolol, carvedilol, labetalol, calcium channel blockers, dihydropyridines, amlodipine, felodipine, isradipine, lercanidipine, nicardipine, nifedipine, nimodipine, nitrendipine, non-dihydropyridines, diltiazem verapamil, renin inhibitors, Aliskiren, ACE inhibitors, captopril, enalapril, fosinopril, lisinopril, perindopril, quinapril, ramipril, trandolapril, benazepril, angiotensin II receptor antagonists, candesartan, eprosartan, irbesartan, losartan, olmesartan, telmisartan, valsartan, aldosterone antagonists, eplerenone, spironolactone, a vasodilator, sodium nitroprusside, Alpha-2 agonists, Clonidine, Guanabenz, Methyldopa, Moxonidine, Guanethidine, Reserpine, nitrate, nitroglycerin (glyceryl trinitrate), pentaerythritol tetranitrate, isosorbide dinitrate or isosorbide mononitrate;

xxix. further comprises at least one other agent, wherein the combination allows for mitigation of undesirable side effects of at least one other agent contained therein;

xxx. further comprises at least one therapeutic agent for inflammation;

xxxi. further comprises at least one therapeutic agent for inflammation comprising a cyclooxygenase type 1 inhibitor, a cyclooxygenase type 2 inhibitor, a small molecule modulator of p38-MAPK, a small molecule modulator of intracellular molecules involved in inflammation pathways, or mixtures thereof; and/or

xxxii. is lyophilized, stabilized and/or or formulated for administration by injection.

15. Use of an antibody or antibody fragment according to any one of Claims 1-12 or a composition according to any one of Claims 13-14 for the preparation of a medicament for:

i. blocking, inhibiting or neutralizing one or more biological effects associated with PCSK9;

ii. treating or preventing a condition associated with elevated serum cholesterol levels in a patient;

iii. treating or preventing elevated serum cholesterol levels in a patient in need thereof or at risk of developing elevated serum cholesterol levels because of an existing condition;

iv. blocking, inhibiting or neutralizing one or more biological effects associated with PCSK9, wherein the condition is selected from the group consisting of hypercholesterolemia, coronary heart disease, hyperlipidemia, hypertriglyceridaemia, sitosterolemia, atherosclerosis, arteriosclerosis metabolic syndrome, acute coronary syndrome, vascular inflammation, xanthoma, diabetes, obesity, hypertension, and angina;

v. treating or preventing a condition associated with elevated serum cholesterol levels in a patient, wherein the condition is selected from the group consisting of hypercholesterolemia, coronary heart disease, hyperlipidemia, hypertriglyceridaemia, sitosterolemia, atherosclerosis, arteriosclerosis metabolic syndrome, acute coronary syndrome, vascular inflammation, xanthoma, diabetes, obesity, hypertension, and angina;

vi. treating or preventing elevated serum cholesterol levels in a patient in need thereof or at risk of developing elevated serum cholesterol levels because of an existing condition;

vii. wherein the condition is selected from the group consisting of hypercholesterolemia, coronary heart disease, hyperlipidemia, hypertriglyceridaemia, sitosterolemia, atherosclerosis, arteriosclerosis metabolic syndrome, acute coronary syndrome, vascular inflammation, xanthoma, diabetes, obesity, hypertension, and angina;

viii. treating or preventing a disorder involving cholesterol or lipid homeostasis or complications associated therewith;

ix. treating or preventing a disorder involving cholesterol or lipid homeostasis or complications associated therewith, wherein the treated condition is selected from hypercholesterolemia, hyperlipidemia, hypertriglyceridaemia, and sitosterolemia; and/or

x. lowering serum cholesterol level in a subject.

16. The use of claim 15, wherein the at least one isolated anti-human PCSK9 antibody or antibody fragment:

i. inhibits the binding of PCSK9 to LDLR; and/or

ii. results in blocking or inhibition of cholesterol synthesis.

17. The use of any one of Claims 15-16, wherein the medicament is for use in conjunction with another agent or regimen:

i. that elevates the availability of LDLR protein or which blocks or inhibits cholesterol synthesis;

ii. that further includes of at least one of the following: statins, ACE inhibitors, Angiotensin II receptor blockers (ARBs), Antiarrhythmics, Antiplatelet Drugs, aspirin, beta blockers, amiodarone, digoxin, aspirin, anti-clotting agents, digoxin, diuretics, heart failure drugs, vasodilators, blood thinners, other anti-cholesterol drugs such as holestyramine (Questran), gemfibrozil (Lopid, Gemcor), Omacor, pantethine, anti-hypertensives, antidiabetigenic drugs, Meglitinides, Sulfonylurea, and Thiazolidinediones;

iii. that further includes an ACE inhibitor selected from: Capoten (captopril), Vasotec (enalapril), Prinivil, Zestril (lisinopril), Lotensin (benazepril), Monopril (fosinopril), Altace (ramipril), Accupril (quinapril), Aceon (perindopril), Mavik (trandolapril), Univasc (moexipril),

iv. that further includes an ARB selected from: Cozaar (losartan), Diovan (valsartan), Avapro (irbesartan), Atacand (candesartan), and Micardis (telmisartan);

v. that further includes an antiarythmic selected from: Tambocor (flecainide), Procanbid (procainamide), Cordarone (amiodarone), and Betapace (sotalol);

vi. that further includes an anti-clotting agent selected from: Tissue plasminogen activator (TPA), Tenecteplase, Alteplase, Urokinase, Reteplase, and Streptokinase;

vii. that further includes a Beta-blocker selected from: Sectral (acebutolol), Zebeta (bisoprolol), Brevibloc (esmolol), Inderal (propranolol), Tenormin (atenolol), Normodyne, Trandate (labetalol), Coreg (carvedilol), Lopressor, and Toprol-XL (metoprolol);

viii. that further includes a calcium channel blocker selected from: Norvasc (amlodipine), Plendil (felodipine), Cardizem, Cardizem CD, Cardizem SR, Dilacor XR, Diltia XT, Tiazac (diltiazem), Calan, Calan SR, Covera-HS, Isoptin, Isoptin SR, Verelan, Verelan PM (verapamil), Adalat, Adalat CC, Procardia, Procardia XL (nifedipine), Cardene, Cardene SR (nicardipine), Sular (nisoldipine), Vascor (bepridil), and Caduet which is a combination of a statin cholesterol drug and amlodipine;

ix. that further includes an antidiuretic selected from: Lasix (furosemide), Bumex (bumetanide), Demadex (torsemide), Esidrix (hydrochlorothiazide), Zaroxolyn (metolazone), and Aldactone (spironolactone);

x. that further includes a heart failure drug selected from Dobutrex (dobutamine), and Primacor (milrinone);

xi. that further includes a vasodilator selected from: Dilatrate-SR, Iso-Bid, Isonate, Isorbid, Isordil, Isotrate, Sorbitrate (isosorbide dinitrate), IMDUR (isorbide mononitrate), and BiDil (hydralazine with isosorbide dinitrate;

xii. that further includes a blood thinner selected from Warfarin (coumadin), Heparin, Lovenox, and Fragmin;

xiii. that further includes an agent that elevates the availability of LDLR protein or which blocks or inhibits cholesterol synthesis is administered simultaneously with the antibody or composition containing;

xiv. that further includes another agent that elevates the availability of LDLR protein or which blocks or inhibits cholesterol synthesis which is administered sequentially relative to the antibody or composition containing;

xv. that further includes a statin;

xvi. that further includes a statin selected from atorvastatin, cerivastatin, fluvastatin, lovastatin, mevastatin, pitavastatin, pravastatin, rosuvastatin, simvastatin, or mixtures thereof;

xvii. that further includes an agent that elevates the HDL level, an agent that decreases triglyceride levels, or both;

xviii. that further includes a fibrate;

xix. that further includes a fibrate agent comprising bezafibrate, ciprofibrate, clofibrate, gemfibrozil, fenofibrate, or mixtures thereof;

xx. that further includes a bile sequestering agent;

xxi. that further includes a bile sequestering agent comprising cholestyramine, colesevelam, colestipol, or mixtures thereof;

xxii. that further includes an agent that decreases cholesterol absorption in the intestines;

xxiii. that further includes an agent comprising ezetimibe;

xxiv. that further includes an agent that inhibits hepatic triglyceride production, inhibits VLDL secretions, or both;

xxv. that further includes acipimox;

xxvi. that further includes an agent that decreases lipid absorption in the intestines;

xxvii. that further includes an agent comprising orlistat, lipstatin, or mixtures thereof;

xxviii. that further includes an agent that is an anti-hypertensive, one that treats angina, or both;

xxix. that further includes an anti-hypertensive or anti-angina agent selected from a diuretic, an adrenergic receptor antagonist, a calcium channel blocker, a renin inhibitor, an ACE inhibitor, an angiotensin II receptor antagonist, an aldosterone antagonist, a vasodilator or an alpha-2 agonist; and/or

xxx. that further includes a diuretic, bumetanide, thacrynic acid, furosemide, torsemide, a thiazide diuretic, epitizide, hydrochlorothiazide, chlorothiazide, bendroflumethiazide, a thiazide-like diuretic, indapamide, chlorthalidone, metolazone, a potassium-sparing diuretic, amiloride, triamterene, spironolactone, an adrenergic receptor antagonist, beta blocker, atenolol, metoprolol, nadolol, oxprenolol, pindolol, propranolol, timolol, an alpha blocker, doxazosin, phentolamine, indoramin, phenoxybenzamine, prazosin, terazosin, tolazoline, a mixed alpha + beta blocker, bucindolol, carvedilol, labetalol, a calcium channel blocker, a dihydropyridine calcium channel blocker, amlodipine, felodipine, isradipine, lercanidipine, nicardipine, nifedipine, nimodipine, nitrendipine, a non-dihydropyridines calcium channel blocker, diltiazem, verapamil, a renin inhibitor, Aliskiren, an ACE inhibitor, captopril, enalapril, fosinopril, lisinopril, perindopril, quinapril, ramipril, trandolapril, benazepril, an angiotensin II receptor antagonist, candesartan, eprosartan, irbesartan,

losartan, olmesartan, telmisartan, valsartan, an aldosterone antagonist, eplerenone, spironolactone, a vasodilator, sodium nitroprusside, an Alpha-2 agonist, Clonidine, Guanabenz, Methyldopa, Moxonidine, Guanethidine, Reserpine, a nitrate, nitroglycerin (glyceryl trinitrate), pentaerythritol tetranitrate, isosorbide dinitrate or isosorbide mononitrate;

xxxi. that allows for mitigation of undesirable side effects of at least one other agent;

18. The use of any one of claims 15-17, wherein the antibody or antibody fragment or composition inhibits PCSK9 binding to LDLR.

19. The use of any one of Claims 15-18, wherein the medicament is for use in conjunction with another agent or regimen:

i. that elevates the availability of LDLR protein or which decreases serum cholesterol;

ii. that elevates the availability of LDLR protein or which decreases serum cholesterol, which agent or regimen is administered simultaneously or sequentially with the antibody or composition

iii. that comprises a statin;

iv. that comprises atorvastatin, cerivastatin, fluvastatin, lovastatin, mevastatin, pitavastatin, pravastatin, rosuvastatin, simvastatin, or a combination thereof;

v. that elevates the HDL level, decreases triglyceride levels, or both;

vi. comprises a fibrate;

vii. that comprises bezafibrate, ciprofibrate, clofibrate, gemfibrozil, fenofibrate, or mixtures thereof;

viii. that comprises a bile sequestering agent;

ix. that comprises cholestyramine, colesevelam, colestipol, or mixtures thereof;

x. that decreases cholesterol absorption in the intestines;

xi. that comprises ezetimibe;

xii. that inhibits hepatic triglyceride production, inhibits VLDL secretions, or both;

xiii. that comprises acipimox, Gemfibrozil or nicotinic acid, and nicotinic acid analogs;

xiv. that decreases lipid absorption in the intestines; and/or

xv. that comprises orlistat, lipstatin, or mixtures thereof;

20. Use of an antibody or antibody fragment according to any one of Claims 1-12 or a composition according to any one of Claims 13-14 for the preparation of a medicament for increasing LDLR protein level in a subject.

21. The use of claim 20, wherein the antibody or antibody fragment inhibits PCSK9 binding to LDLR.

22. The use of claim 21, wherein the therapeutic regimen further comprises:

i. another agent that elevates the availability of LDLR protein or one which decreases serum cholesterol;

ii. a statin;

iii. atorvastatin, cerivastatin, fluvastatin, lovastatin, mevastatin, pitavastatin, pravastatin, rosuvastatin, simvastatin, or a combination thereof;

iv. an agent that elevates the HDL level, an agent that decreases triglyceride levels, or both;

v. a fibrate;

vi. bezafibrate, ciprofibrate, clofibrate, gemfibrozil, fenofibrate, or mixtures thereof;

vii. a bile sequestering agent;

viii. cholestyramine, colesevelam, colestipol, or mixtures thereof;

ix. an agent that decreases cholesterol absorption in the intestines;

x. ezetimibe;

xi. an agent that inhibits hepatic triglyceride production, inhibits VLDL secretions, or both;

xii. acipimox, Gemfibrozil or nicotinic acid, or a nicotinic acid analog;

xiii. an agent that decreases lipid absorption in the intestines;

xiv. orlistat, lipstatin, or mixtures thereof;

xv. an agent that is an anti-hypertensive, treats angina, or both;

xvi. amlodipine, diuretic, an adrenergic receptor antagonist, a calcium channel blocker, a renin inhibitor, an ACE inhibitor, an angiotensin II receptor antagonist, an aldosterone antagonist, a vasodilator, a nitrate or an alpha-2 agonist;

xvii. a diuretic, bumetanide, thacrynic acid, furosemide, torsemide, a thiazide diuretic, epitizide, hydrochlorothiazide, chlorothiazide, bendroflumethiazide, a thiazide-like diuretic, indapamide, chlorthalidone, metolazone, a potassium-sparing diuretic, amiloride, triamterene, spironolactone, the adrenergic receptor antagonists, beta blockers, atenolol, metoprolol, nadolol, oxprenolol, pindolol, propranolol, timolol, the alpha blockers, doxazosin, phentolamine, indoramin, phenoxybenzamine, prazosin, terazosin, tolazoline, mixed alpha + beta blockers, bucindolol, carvedilol, labetalol, calcium channel blockers, dihydropyridines, amlodipine, felodipine, isradipine, lercanidipine, nicardipine, nifedipine, nimodipine, nitrendipine, non-dihydropyridines, diltiazem verapamil, renin inhibitors, Aliskiren, ACE inhibitors, captopril, enalapril, fosinopril, lisinopril, perindopril, quinapril, ramipril, trandolapril, benazepril, angiotensin II receptor antagonists, candesartan, eprosartan, irbesartan, losartan, olmesartan, telmisartan, valsartan, aldosterone antagonists, eplerenone, spironolactone, a vasodilator, sodium nitroprusside, Alpha-2 agonists, Clonidine, Guanabenz, Methyldopa, Moxonidine, Guanethidine, Reserpine, nitrate, nitroglycerin (glyceryl trinitrate), pentaerythritol tetranitrate, isosorbide dinitrate or isosorbide mononitrate;

xviii. an agent that inhibits inflammation; and/or

xix. a cyclooxygenase type 1 inhibitor, a cyclooxygenase type 2 inhibitor, a small molecule modulator of p38-MAPK, a small molecule modulator of intracellular molecules involved in inflammation pathways, or mixtures thereof.

23. The use of any one of claims 15-22, wherein the antibody or antibody fragment or composition containing and the at least one other agent are administered concurrently, or the antibody or antibody fragment or composition containing is administered before the at least one other agent, or the antibody or antibody fragment or composition containing is administered after the at least one other agent, wherein the antibody or antibody fragment or composition containing and the at least one other agent are administered are administered by the same or different routes of administration.

24. The use according to any one of Claims 15-23, that is used to treat or prevent a disease or the complications of a disease or condition selected from hypercholesterolemia, heart disease, metabolic syndrome, diabetes, coronary heart disease, stroke, cardiovascular diseases, Alzheimer's disease, dyslipidemias, elevated total serum cholesterol, elevated LDL, elevated triglycerides, elevated VLDL, low HDL, metabolic syndrome, diabetes mellitus, familial combined hyperlipidemia, familial

hypertriglyceridemia, familial hypercholesterolemias, including heterozygous hypercholesterolemia, homozygous hypercholesterolemia, familial defective apoplipoprotein B-100; polygenic hypercholesterolemia; remnant removal disease, hepatic lipase deficiency; dyslipidemia secondary to any of the following: dietary indiscretion, hypothyroidism, drugs including estrogen and progestin therapy, beta-blockers, and thiazide diuretics; nephrotic syndrome, chronic renal failure, Cushing's syndrome, primary biliary cirrhosis, glycogen storage diseases, hepatoma, cholestasis, acromegaly, insulinoma, isolated growth hormone deficiency, and alcohol-induced hypertriglyceridemia. atherosclerotic diseases such as coronary heart disease, coronary artery disease, peripheral arterial disease, stroke (ischaemic and hemorrhagic), angina pectoris, cerebrovascular disease and acute coronary syndrome, myocardial infarction, reducing the risk of: nonfatal heart attacks, fatal and non-fatal strokes, certain types of heart surgery, hospitalization for heart failure, chest pain in patients with heart disease, and/or cardiovascular events because of established heart disease such as prior heart attack, prior heart surgery, and/or chest pain with evidence of clogged arteries, or the risk of recurrent cardiovascular events.

25. An isolated nucleic acid or nucleic acids which encodes and when expressed in a suitable host cell result in the expression of an anti-human PCSK9 antibody or antibody fragment or the variable heavy or light chain thereof according to any one of claims 1-12.

26. The nucleic acid or nucleic acids of claim 25, wherein said nucleic acid or nucleic acids which encode said antibody or antibody fragment comprise a sequence at least 80, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO: 12, SEQ ID NO: 32; SEQ ID NO: 52, SEQ ID NO: 72; SEQ ID NO: 92, SEQ ID NO: 112; SEQ ID NO: 132, SEQ ID NO: 152; SEQ ID NO: 172, SEQ ID NO: 192; SEQ ID NO: 212, SEQ ID NO: 232, SEQ ID NO: 252, SEQ ID NO: 272; SEQ ID NO: 292, SEQ ID NO: 312; SEQ ID NO: 332, SEQ ID NO: 352; SEQ ID NO: 372, SEQ ID NO: 392; SEQ ID NO: 412, SEQ ID NO: 432; SEQ ID NO: 452, SEQ ID NO: 472; SEQ ID NO: 492, SEQ ID NO: 512, SEQ ID NO: 532, SEQ ID NO: 552, SEQ ID NO: 572, SEQ ID NO: 592, SEQ ID NO: 612, SEQ ID NO: 632, SEQ ID NO: 652, SEQ ID NO: 672; SEQ ID NO: 692; SEQ ID NO: 712; SEQ ID NO: 732; SEQ ID NO: 752; SEQ ID NO: 772; SEQ ID NO: 792; SEQ ID NO: 812; SEQ ID NO: 832; SEQ ID NO: 852; SEQ ID NO: 872; SEQ ID NO: 892; SEQ ID NO: 912; SEQ ID NO: 932; SEQ ID NO: 952; or a codon degenerate thereof.

27. A vector or vectors comprising the nucleic acid sequence or sequences of any of Claims 25-26.

28. A host cell comprising nucleic acid sequence or sequences of any of Claims 25-26 or a vector or vectors according to Claim 27.

29. The host cell of claim 28, wherein said host cell is a mammalian, bacterial, fungal, yeast, avian, insect cell, a filamentous fungus, a yeast, Pichia pastoris, Pichia finlandica, Pichia trehalophila, Pichia koclamae, Pichia membranaefaciens, Pichia minuta (Ogataea minuta, Pichia lindneri), Pichia opuntiae, Pichia thermotolerans, Pichia salictaria, Pichia guercuum, Pichia pijperi, Pichia stiptis, Pichia methanolica, a Pichia

sp., Saccharomyces cerevisiae, a Saccharomyces sp., Hansenula polymorpha, a Kluyveromyces sp., Kluyveromyces lactis, Candida albicans, Aspergillus nidulans, Aspergillus niger, Aspergillus oryzae, Trichoderma reesei, Chrysosporium lucknowense, a Fusarium sp., Fusarium gramineum, Fusarium venenatum, Physcomitrella patens and Neurospora crassa, a Saccharomyces sp., Hansenula polymorpha, a Kluyveromyces sp., Candida albicans, a Aspergillus sp., Trichoderma reesei, Chrysosporium lucknowense, a Fusarium sp., Neurospora crassa, a mammalian cell, CHO, COS, BHK, myeloma, monkey kidney CV1 line transformed by SV40 (COS-7, ATCC CRL 1651), human embryonic kidney line (293 or 293 cells subcloned for growth in suspension culture), mouse sertoli cell, human lung cell, human liver cell, or a mouse mammary tumor cell.

30. A method of making the antibody or antibody fragment according to any one of claims 1-12, by expressing nucleic acids which encodes said antibody or antibody fragment in a recombinant host cell.

31. The method of Claim 30, wherein the host cell is selected from a bacteria, yeast, fungi, insect cell, plant cell, avian cell, mammalian cell, yeast, filamentous fungus, polyploid yeast, polyploid filamentous fungus, Pichia pastoris, Pichia finlandica, Pichia trehalophila, Pichia koclamae, Pichia membranaefaciens, Pichia minuta (Ogataea minuta, Pichia lindneri), Pichia opuntiae, Pichia thermotolerans, Pichia salictaria, Pichia guercuum, Pichia pijperi, Pichia stiptis, Pichia methanolica, Pichia sp., Saccharomyces cerevisiae, Saccharomyces sp., Hansenula polymorpha, Kluyveromyces sp., Kluyveromyces lactis, Candida albicans, Aspergillus nidulans, Aspergillus niger, Aspergillus oryzae, Trichoderma reesei, Chrysosporium lucknowense, Fusarium sp., Fusarium gramineum, Fusarium venenatum, Physcomitrella patens and Neurospora crassa. Pichia sp., any Saccharomyces sp., Hansenula polymorpha, Aspergillus sp., a mammalian cell, CHO, COS, BHK, myeloma, monkey kidney CV1 line transformed by SV40 (COS-7, ATCC CRL 1651), human embryonic kidney line (293 or 293 cells subcloned for growth in suspension culture), mouse sertoli cell, human lung cell, human liver cell, or mouse mammary tumor cell.

32. The method of 31, wherein the recombinant host cell is a polyploid yeast culture that stably expresses and secretes into the culture medium at least 10-25 mg/liter of said antibody or antibody fragment.

33. The method of Claim 32, wherein said polyploid yeast is made by a method that comprises:

i. introducing at least one expression vector containing one or more heterologous polynucleotides encoding said antibody operably linked to a promoter and a signal sequence into a haploid yeast cell;

ii. producing by mating or spheroplast fusion a polyploidal yeast from said first and/or second haploid yeast cell;

iii. selecting polyploidal yeast cells that stably express said antibody; and

iv. producing stable polyploidal yeast cultures from said polyploidal yeast cells that stably express said antibody into the culture medium.

34. The method of claim 33, wherein said yeast cell is of the genus Pichia.

35. Use of an antibody or antibody fragment according to any of Claims 1-12 in the manufacture of a medicament.

36. The use of claim 35, wherein the antibody or antibody fragment:

i. is administered by a route selected from buccal, epicutaneous, epidural, inhalation, intraarterial, intracardial, intracerebroventricular, intradermal, intramuscular, intranasal, intraocular, intraperitoneal, intraspinal, intrathecal, intravenous, oral, parenteral, rectally via an enema or suppository, subcutaneous, subdermal, sublingual, transdermal, and transmucosal;

ii. is suitable for administration by a route selected from subcutaneous, intravenous, intraarterial, intracardial, intracerebroventricular, intramuscular, intraperitoneal, intraspinal, intrathecal, and parenteral; and/or

iii. is contained in a powder, liquid, gel, drop, or other dosage form.

37. A composition containing an antibody or antibody fragment according to any one of Claims 1-12, which is suitable for administration by a means selected from buccal, epicutaneous, epidural, inhalation, intraarterial, intracardial, intracerebroventricular, intradermal, intramuscular, intranasal, intraocular, intraperitoneal, intraspinal, intrathecal, intravenous, oral, parenteral, rectally via an enema or suppository, subcutaneous, subdermal, sublingual, transdermal, and transmucosal.

38. The composition of Claim 37, wherein the composition:

i. is suitable for administration by a means selected from subcutaneous, intravenous, intraarterial, intracardial, intracerebroventricular, intramuscular, intraperitoneal, intraspinal, intrathecal, and parenteral; and/or

ii. which comprises a powder, liquid, gel, drop, liposomal, or other dosage form.

39. A method of using an antibody or antibody fragment according to any one of Claims 1-12 to isolate, detect or purify PCSK9 in a sample.

40. A method of using an antibody or antibody fragment according to any one of Claims 1-12 to detect the levels of PCSK9 in vivo or ex vivo.

41. The method of Claim 40, which is used to assess whether a patient should be administered an anti-PCSK9 antibody or antibody fragment or another therapy/ and/or is used to assess the efficacy of a treatment method the objective of which is to reduce cholesterol or alter lipid levels.