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.

CLAIMS

1. An anti-human PCSK9 antibody or antibody fragment, 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-human 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.

2. The anti-human PCSK9 antibody or antibody fragment of Claim 1, wherein said anti-human PCSK9 antibody or antibody fragment specifically binds to the same or overlapping epitope(s) on human PCSK9 as an anti-human PCSK9 antibody selected from claim 1, and further 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.

3. An anti-human PCSK9 antibody or antibody fragment according to any one of Claims 1-2, 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.

4. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-3, 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.

5. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-3, 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.

6. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-3, 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.

7. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-3, 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 80, 85, 90, 95, 96, 97, 98, 99 or 100% identical to SEQ ID NO:941.

8. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-7, 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; and/or

xiv. is attached to one or more functional moieties.

9. The anti-human PCSK9 antibody or antibody fragment of any one of Claims 1-8, 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; and/or

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

10. An anti-idiotypic antibody produced against an anti-human PCSK9 antibody or antibody fragment according to any one of Claims 1-9.

11. 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 1-10.

12. 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 anti-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.

13. An antibody or antibody fragment according to any one of Claims 1-10 or a composition according to any one of Claims 11-12 for use in:

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.

14. The anti-human PCSK9 antibody or antibody fragment for use according to claim 13, 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.

15. The anti-human PCSK9 antibody or antibody fragment for use according to any one of claims 13 or 14, wherein the said antibody or antibody fragment 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;

16. The anti-human PCSK9 antibody or antibody fragment for use according to any one of claims 13-15, wherein the antibody or antibody fragment or composition inhibits PCSK9 binding to LDLR.

17. The anti-human PCSK9 antibody or antibody fragment for use according to any one of claims 13-16, wherein said antibody or antibody fragment 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;

18. Use of an antibody or antibody fragment according to any one of Claims 1-10 or a composition according to any one of Claims 11-12 for increasing LDLR protein level in a subject.

19. The anti-human PCSK9 antibody or antibody fragment for use according to claim 18, wherein the antibody or antibody fragment inhibits PCSK9 binding to LDLR.

20. The anti-human PCSK9 antibody or antibody fragment for use according to claim 19, 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.

21. The anti-human PCSK9 antibody or antibody fragment for use according to any one of claims 13-20, 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.

22. The anti-human PCSK9 antibody or antibody fragment for use according to any one of claims 13-21, 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.

23. 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 1-10.

24. The nucleic acid or nucleic acids of claim 23, 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.

25. A vector or vectors comprising the nucleic acid sequence or sequences of any of Claims 23-24.

26. A host cell comprising nucleic acid sequence or sequences of any of Claims 23-24 or a vector or vectors according to Claim 25.

27. The host cell of claim 26, 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.

28. A method of making the antibody or antibody fragment according to any one of claims 1-10, by expressing nucleic acids which encodes said antibody or antibody fragment in a recombinant host cell.

29. The method of Claim 28, 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.

30. The method of 29, 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.

31. The method of Claim 30, 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.

32. The method of claim 31, wherein said yeast cell is of the genus Pichia.

33. Use of an antibody or antibody fragment according to any of Claims 1-10 in the manufacture of a medicament 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.

34. The use of claim 33, 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.

35. A composition containing an antibody or antibody fragment according to any one of Claims 1-10, 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.

36. The composition of Claim 35, 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.

37. A method of using an antibody or antibody fragment according to any one of Claims 1-10 to isolate, detect or purify PCSK9 in a sample.

38. A method of using an antibody or antibody fragment according to any one of Claims 1-10 to detect the levels of PCSK9 in vivo or ex vivo.

39. The method of Claim 38, 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.