Claims:

1. A method of increasing function and/or expression of an apolipoprotein (ApoA1) polynucleotide or protein in patient cells or tissues in vitro comprising contacting said cells or tissues with an antisense oligonucleotide 5 to 30 nucleotides in length wherein said antisense oligonucleotide targets a natural antisense polynucleotide of the ApoA1 gene and has at least 50% sequence identity to a 5 to 30 nucleotide region in a reverse complement of said natural antisense polynucleotide thereby increasing function and/or expression of the apolipoprotein (ApoA1) polynucleotide or protein in patient cells or tissue in vitro.

2. An antisense oligonucleotide 5 to 30 nucleotide in length and having at least 50% sequence identity to a reverse complement of a natural antisense polynucleotide of an apolipoprotein (ApoA1) gene for use in specifically targeting said natural antisense transcript for increasing the function and/or expression of an apolipoprotein (ApoA1) polynucleotide or protein in patient cells or tissues, said use comprising contacting said cells or tissues with said antisense oligonucleotide.

3. An antisense oligonucleotide for use according to claim 2, wherein the use is in the treatment of an apolipoprotein (ApoAI) associated disease or condition.

4. Use of an antisense oliogonucleotide 10 to 30 nucleotides in length for targeting a natural antisense polynucleotide of an ApoA1 gene wherein said antisense oligonucleotide has at least 50% sequence identity to a 10 to 30 nucleotide region of a reverse complement of said natural antisense polynucleotide for the manufacture of a medicament for the treatment of an apolipoprotein (ApoA1) associated disease or condition.

5. An antisense oligonucleotide for use according to claim 3 or use according to claim 4, wherein the disease or condition is selected from the group consisting of cardiovascular disorders, cholesterol, diabetes, heart disease, arthritis, inflammation, neurological diseases or disorders, autoimmune diseases, cancer, or obesity.

6. A method according to claim 1 or an antisense oligonucleotide for use according to claim 2 or use according to claim 4, wherein the antisense oligonucleotide has at least 50% sequence identity to a reverse complement of a polynucleotide comprising 5 to 30 consecutive nucleotides within nucleotides 1-932 of SEQ ID NO:2 (Figure 8).

7. A method according to claim 1 or an antisense oligonucleotide for use according to claim 2 or use according to claim 4, wherein the expression and/or function of the apolipoprotein (ApoAI) is increased by at least 10%.

8. A method according to claim 1 or an antisense oligonucleotide for use according to claim 2 or use according to claim 4, wherein:

   (a) the antisense oligonucleotide targets a region of the natural antisense transcript of the apolipoprotein (ApoAI) polynucleotide; or

   (b) the antisense oligonucleotide has at least 50% sequence identity to a reverse complement of an antisense comprising a natural antisense transcript of the apolipoprotein (ApoA1) polynucleotide.

9. A method according to claim 8 or an antisense oligonucleotide for use according to claim 8 or use according to claim 8, wherein:

   (a) the antisense oligonucleotide targets a nucleic acid sequence comprising coding and/or non-coding nucleic acid sequences of an apolipoprotein (ApoAI) polynucleotide;

(b) the antisense oligonucleotides target overlapping and/or non-overlapping sequences of apolipoprotein (ApoAI) polynucleotides;

(c) the antisense oligonucleotide has at least 50% sequence identity to at least one nucleic acid sequence set forth as SEQ ID NOS: 81 to 173; or

(d) the antisense oligonucleotide has the nucleic acid sequence set forth as SEQ ID NOS: 81 to 173.

10. A pharmaceutical composition comprising a pharmaceutically acceptable excipient and an antisense oligonucleotide 10 to 30 nucleotides in length that specifically targets a natural antisense polynucleotide of an ApoA1 gene and has at least 50% sequence identity to a 10 to 30 nucleotide region within a reverse complement of said natural antisense polynucleotide of said ApoA1 gene.

11. A pharmaceutical composition according to claim 10, wherein:

(a) the antisense oligonucleotide targets a region of the natural antisense transcript of the apolipoprotein (ApoAI) polynucleotide; or

(b) the antisense oligonucleotide has at least 50% sequence identity to a reverse complement of an antisense comprising a natural antisense transcript of the apolipoprotein (ApoA1) polynucleotide.

12. A pharmaceutical composition according to claim 10, wherein:

(a) the antisense oligonucleotide has at least 50% sequence identity to at least one nucleic acid sequence selected from the group consisting of SEQ ID NOS: 81 to 173; or

(b) the antisense oligonucleotide has a nucleic acid sequence selected from the group consisting of SEQ ID NOS: 81 to 173; or

(c) the antisense oligonucleotide has at least 50% sequence identity to a reverse complement of a polynucleotide comprising 5 to 30 consecutive nucleotides within nucleotides 1-932 of SEQ ID NO:2 (Figure 8).

13. An antisense oligonucleotide 5 to 30 nucleotides in length and having at least 50% sequence identity to a reverse complement of a polynucleotide comprising 5 to 30 consecutive nucleotides within nucleotides 1-932 of SEQ ID NO:2 (Figure 8).

14. An antisense oligonucleotide according to claim 13, wherein the antisense oligonucleotide further has at least 50% sequence identity to at least one nucleic acid sequence selected from the group consisting of SEQ ID NOS: 81 to 173; or has a nucleic acid sequence selected from the group consisting of SEQ ID NOS: 81 to 173.

15. An antisense oligonucleotide according to claim 13, wherein the antisense oligonucleotide further comprises:

(a) one or more modified internucleoside linkages comprising a phosphorothioate, T - O-methoxyethyl (MOE), 2'-fluoro, alkylphosphonate, phosphorodithioate, alkylphosphonothioate, phosphoramidate, carbamate, carbonate, phosphate triester, acetamidate, carboxymethyl ester, and/or combinations thereof;

(b) at least one modified nucleotide selected form the group consisting of peptide nucleic acids, locked nucleic acid (INA) molecules, arabinonucleic acid (FANA), peptide nucleic acids (PNAs), analogues or derivatives thereof; or

(c) a modified sugar moiety comprising a 2'-O- methoxyethyl modified sugar moiety, a 2'-methoxy modified sugar moiety, a 2'-O-alkyl modified sugar moiety, or a bicyclic sugar moiety.

Claims:

1. A method of increasing function and/or expression of an apolipoprotein (ApoA1) polynucleotide in patient cells or tissues in vitro comprising contacting said cells or tissues with an antisense oligonucleotide 10 to 30 nucleotides in length wherein said antisense oligonucleotide is specific for a natural antisense polynucleotide of the ApoA1 gene and has at least 50% sequence identity to a 10 to 30 nucleotide region of a reverse complement of said natural antisense polynucleotide thereby increasing function and/or expression of the apolipoprotein (ApoA1) polynucleotide or protein in patient cells or tissues.

2. An antisense oligonucleotide 5 to 30 nucleotide in length and having at least 50% sequence identity to a reverse complement of a natural antisense polynucleotide of the apolipoprotein (ApoA1) gene for use in specifically targeting said natural antisense transcript for increasing the function and/or expression of an apolipoprotein (ApoA1) polynucleotide or protein in patient cells or tissues, said use comprising contacting said cells or tissues with said antisense oligonucleotide.

3. An antisense oligonucleotide for use according to claim 2, wherein the use is in the treatment of an apolipoprotein (ApoAI) associated disease or condition.

4. Use of an antisense oliogonucleotide 10 to 30 nucleotides in length for targeting a natural antisense polynucleotide of the ApoA1 gene wherein said antisense oligonucleotide has at least 50% sequence identity to a 10 to 30 nucleotide region of a reverse complement of said natural antisense polynucleotide for the manufacture of a medicament for the treatment of an apolipoprotein (ApoA1) associated disease or condition.

5. An antisense oligonucleotide for use according to claim 3 or use according to claim 4, wherein the disease or condition is selected from the group consisting of cardiovascular disorders, cholesterol, diabetes, heart disease, arthritis, inflammation, neurological diseases or disorders, autoimmune diseases, cancer, or obesity.

6. A method according to claim 1 or an antisense oligonucleotide for use according to claim 2 or use according to claim 4, wherein the antisense oligonucleotide has at least 50% sequence identity to a reverse complement of a polynucleotide comprising 5 to 30 consecutive nucleotides within nucleotides 1-932 of SEQ ID NO:2 (Figure 8).

7. A method according to claim 1 or an antisense oligonucleotide for use according to claim 2 or use according to claim 4, wherein the expression and/or function of the apolipoprotein (ApoAI) is increased by at least 10%.

8. A method according to claim 1 or an antisense oligonucleotide for use according to claim 2 or use according to claim 4, wherein:

   (a) the antisense oligonucleotide targets a region of the natural antisense transcript of the apolipoprotein (ApoAI) polynucleotide; or

   (b) the antisense oligonucleotide has at least 50% sequence identity to a reverse complement of an antisense comprising a natural antisense transcript of the apolipoprotein (ApoA1) polynucleotide.

9. A method according to claim 8 or an antisense oligonucleotide for use according to claim 8 or use according to claim 8, wherein:

   (a) the antisense oligonucleotide targets a nucleic acid sequence comprising coding and/or non-coding nucleic acid sequences of an apolipoprotein (ApoAI) polynucleotide;

(b) the antisense oligonucleotides target overlapping *and/or* non-overlapping sequences of apolipoprotein (ApoAI) polynucleotides;

(c) the antisense oligonucleotide has at least 50% sequence identity to at least one nucleic acid sequence set forth as SEQ ID NOS: 81 to 173; or

(d) the antisense oligonucleotide has the nucleic acid sequence set forth as SEQ ID NOS: 81 to 173.

10. A pharmaceutical composition comprising a pharmaceutically acceptable excipient and an antisense oliognucleotide 10 to 30 nucleotides in length specific for a natural antisense polynucleotide of the ApoA1 gene and having at least 50% sequence identity to a 10 to 30 nucleotide region of a reverse complement of said natural antisense polynucleotide.

11. A pharmaceutical composition according to claim 10, wherein:

(a) the antisense oligonucleotide targets a region of the natural antisense transcript of the apolipoprotein (ApoAI) polynucleotide; or

(b) the antisense oligonucleotide has at least 50% sequence identity to a reverse complement of an antisense comprising a natural antisense transcript of the apolipoprotein (ApoA1) polynucleotide.

12. A pharmaceutical composition according to claim 10, wherein:

(a) the antisense oligonucleotide has at least 50% sequence identity to at least one nucleic acid sequence selected from the group consisting of SEQ ID NOS: 81 to 173; or

(b) the antisense oligonucleotide has a nucleic acid sequence selected from the group consisting of SEQ ID NOS: 81 to 173; or

(c) the antisense oligonucleotide has at least 50% sequence identity to a reverse complement of a polynucleotide comprising 5 to 30 consecutive nucleotides within nucleotides 1-932 of SEQ ID NO:2 (Figure 8).

13. An antisense oligonucleotide 10 to 30 nucleotides in length specific for a natural antisense polynucleotide of the ApoA1 gene and having at least 50% sequence identity to a 10 to 30 nucleotide region of a reverse complement of said natural antisense polynucleotide.

14. The antisense oligonucleotide according to claim 13 wherein said natural antisense polynucleotide is selected from SEQ ID NO: 2.

15. An antisense oligonucleotide according to claim 13, wherein the antisense oligonucleotide further has at least 50% sequence identity to at least one nucleic acid sequence selected from the group consisting of SEQ ID NOS: 81 to 173; or has a nucleic acid sequence selected from the group consisting of SEQ ID NOS: 81 to 173.

16. An antisense oligonucleotide according to claim 13, wherein the antisense oligonucleotide further comprises:

(a) one or more modified internucleoside linkages comprising a phosphorothioate, T - 0-methoxyethyl (MOE), 2'-fiuoro, alkylphosphonate, phosphorodithioate, alkylphosphonothioate, phosphoramidate, carbamate, carbonate, phosphate triester, acetamidate, carboxymethyl ester, and/or combinations thereof;

(b) at least one modified nucleotide selected form the group consisting of peptide nucleic acids, locked nucleic acid (INA) molecules, arabinonucleic acid (FANA), peptide nucleic acids (PNAs), analogues or derivatives thereof; or

(c) a modified sugar moiety comprising a 2'-0- methoxyethyl modified sugar moiety, a 2'methoxy modified sugar moiety, a 2'-0-alkyl modified sugar moiety, or a bicyclic sugar moiety.