What is claimed is:

1. A method for treating type II diabetes mellitus in a subject in need thereof, the method comprising administering to the subject an effective amount of an apolipoprotein A-IV or a biologically active analogue thereof having at least 90% identity to the apolipoprotein A-IV.

2. A method of lowering blood glucose level in a subject in need thereof. the method comprising administering to the subject an effective amount of an apolipoprotein A-IV protein or a biologically active analogue thereof having at least 90% identity to the apolipoprotein A-IV.

3. A method for substantially restoring glucose tolerance in a subject in need thereof to a normal level, the method comprising administering to the subject an effective amount of apolipoprotein A-IV or a biologically active analogue thereof having at least 90% identity to the apolipoprotein A-IV.

4. The method of any one of Claims 1-3, wherein the biologically active analogue thereof has at least 99% identity to the apolipoprotein A-IV.

5. The method of any one of Claims 1-4, wherein the subject is a human.

6. The method of any one of Claims 1-5, wherein the subject is administered an effective amount of an apolipoprotein A-IV, wherein the amino acid sequence of the apolipoprotein is

X_1EVSADQVATVMWDYFSQLSNNAKEAVEHLQKSELTQQLNALFQDKL GEVNTYAGDLQKKLVPFATELHERLAKDSEKLKEEIGKELEELRARLLPHANEV SQKIGDNLRELQQRLEPYADQLRTQVNTQAEQLRRQLTPYAQRMERVLRENAD SLQASLRPHADX$_2$LKAKIDQNVEELKGRLTPYADEFKVKIDQTVEELRRSLAPYA QDTQEKLNHQLEGLTFQMKKNAEELKARISASAEELRQRLAPLAEDVRGNLRG NTEGLQKSLAELGGHLDQQVEEFRRRVEPYGENFNKALVQQMEQLRQKLGPH AGDVEGHLSFLEKDLRDKVNSFFSTFKEKESQDKX$_3$LSLPELEQQQEQX$_4$QEQQQ EQVQMLAPLES (SEQ ID NO. 4)

wherein, X_1 is G, A, V or absent;

X_2 is E or K;

X_3 is T or S; and

X_4 is Q or H

7. The method of any one of Claims 1-5, wherein the apolipoprotein A-IV is a full length human apolioprotein A-IV.

8. The method of Claim 7, wherein the amino acid of the apolipoprotein A-IV is EVSADQVATVMWDYFSQLSNNAKEAVEHLQKSELTQQLNALFQDKLGEVNTY AGDLQKKLVPFATELHERLAKDSEKLKEEIGKELEELRARLLPHANEVSQKIGD NLRELQQRLEPYADQLRTQVNTQAEQLRRQLTPYAQRMERVLRENADSLQASL RPHADELKAKIDQNVEELKGRLTPYADEFKVKIDQTVEELRRSLAPYAQDTQEK LNHQLEGLTFQMKKNAEELKARISASAEELRQRLAPLAEDVRGNLRGNTEGLQ KSLAELGGHLDQQVEEFRRRVEPYGENFNKALVQQMEQLRQKLGPHAGDVEG HLSFLEKDLRDKVNSFFSTFKEKESQDKTLSLPELEQQQEQQQEQQQEQVQMLA PLES (SEQ ID NO. 1).

9. The method of any one of Claims 1-5, wherein the amino acid sequence of the apolipoprotein A-IV is:

GEVSADQVATVMWDYFSQLSNNAKEAVEHLQKSELTQQLNALFQDKL GEVNTYAGDLQKKLVPFATELHERLAKDSEKLKEEIGKELEELRARLLPHANEV SQKIGDNLRELQQRLEPYADQLRTQVNTQAEQLRRQLTPYAQRMERVLRENAD SLQASLRPHADELKAKIDQNVEELKGRLTPYADEFKVKIDQTVEELRRSLAPYA QDTQEKLNHQLEGLTFQMKKNAEELKARISASAEELRQRLAPLAEDVRGNLRG NTEGLQKSLAELGGHLDQQVEEFRRRVEPYGENFNKALVQQMEQLRQKLGPH AGDVEGHLSFLEKDLRDKVNSFFSTFKEKESQDKTLSLPELEQQQEQQQEQQQE QVQMLAPLES (SEQ ID NO. 3).

10. The method according to any one of Claims 1-9, wherein the apolipoprotein A-IV is glycosylated.

11. The method according to any one of Claims 1-9, wherein the apolipoprotein A-IV is unglycosylated.

12. The method according to any one of Claims 1-11, wherein the apolipoprotein A-IV is administered systemically.

13. The method according to Claim 12, wherein the systemic administration of apolipoprotein A-IV or biologically active analogue thereof is selected from the group consisting of oral, subcutaneous, intravenous, intramuscular, and intraperitoneal administration.

14. The method according to any one of Claims 1-13, wherein the apolipoprotein A-IV or biologically active analogue thereof is administered in a dose of about 1 to about 10 μg/g.

15. The method according to any one of Claims 1-13, wherein the apolipoprotein A-IV or biologically active analogue thereof is administered in a dose of about 0.25 to about 2 μg/g .

16. The method according to any one of Claims 1-13, wherein the apolipoprotein A-IV or biologically active analogue thereof is administered in a dose of about 1 μg/g.

17. The method according to any one of Claims 1-16, wherein the apolipoprotein A-IV or biologically active analogue thereof is administered once daily.

18. The method according to any one of Claim 1-16, wherein of apolipoprotein A-IV or biologically active analogue thereof is administered about 2 times per day.

19. A pharmaceutical composition comprising the apolipoprotein A-IV or biologically active analogue thereof of any one of Claims 1-18 formulated for administration to a subject for the treatment of type II diabetes mellitus.

20. The pharmaceutical composition of Claim 19, further comprising a pharmaceutically acceptable carrier or diluent.

21. The pharmaceutical composition of Claim 19 or 20, wherein the pharmaceutical composition is a liquid formulation.

22. The pharmaceutical composition according to any one of Claims 19-21, wherein the pharmaceutical composition is an aqueous formulation.

23. The pharmaceutical composition of Claim 22, wherein the aqueous formulation is pyrogen free.

24. A method for treating type II diabetes mellitus in a subject in need thereof, the method comprising administering an effective amount of the pharmaceutical composition according to any one of Claims 19-23 to the subject.

CLAIMS

1. A polypeptide, wherein the amino acid sequence of the polypeptide is:

X_1EVSADQVATVMWDYFSQLSNNAKEAVEHLQKSELTQQLNALFQDKLGEVNT YAGDLQKKLVPFATELHERLAKDSEKLKEEIGKELEELRARLLPHANEVSQKIGDNLRE LQQRLEPYADQLRTQVNTQAEQLRRQLTPYAQRMERVLRENADSLQASLRPHADX$_2$LK AKIDQNVEELKGRLTPYADEFKVKIDQTVEELRRSLAPYAQDTQEKLNHQLEGLTFQMK KNAEELKARISASAEELRQRLAPLAEDVRGNLRGNTEGLQKSLAELGGHLDQQVEEFRR RVEPYGENFNKALVQQMEQLRQKLGPHAGDVEGHLSFLEKDLRDKVNSFFSTFKEKES QDKX$_3$L*S*LPELEQQQEQX$_4$QEQQQEQVQMLAPLES (SEQ ID NO. 4)

wherein, X_1 is G, A or V;

X_2 is E or K;

X_3 is T or S; and

X_4 is Q or H,

optionally the polypeptide is glycosylated.

2. The polypeptide of claim 1, wherein the amino acid sequence of the polypeptide is:

GEVSADQVATVMWDYFSQLSNNAKEAVEHLQKSELTQQLNALFQDKLGEVNT YAGDLQKKLVPFATELHERLAKDSEKLKEEIGKELEELRARLLPHANEVSQKIGDNLRE LQQRLEPYADQLRTQVNTQAEQLRRQLTPYAQRMERVLRENADSLQASLRPHADELKA KIDQNVEELKGRLTPYADEFKVKIDQTVEELRRSLAPYAQDTQEKLNHQLEGLTFQMKK NAEELKARISASAEELRQRLAPLAEDVRGNLRGNTEGLQKSLAELGGHLDQQVEEFRRR VEPYGENFNKALVQQMEQLRQKLGPHAGDVEGHLSFLEKDLRDKVNSFFSTFKEKESQ DKTL*S*LPELEQQQEQQ*Q*EQQQEQVQMLAPLES (SEQ ID NO. 3), optionally the polypeptide is glycosylated.

3. The polypeptide of claim 1, wherein the polypeptide is glycosylated.

4. The polypeptide of claim 1, wherein the polypeptide is unglycosylated.

5. The polypeptide of claim 2, wherein the polypeptide is glycosylated.

6. The polypeptide of claim 2, wherein the polypeptide is unglycosylated.

7. A pharmaceutical composition comprising the polypeptide of claim 1.

8. The pharmaceutical composition of claim 7, further comprising a pharmaceutically acceptable carrier or diluent.

9. The pharmaceutical composition of claim 8, wherein the pharmaceutical composition is a liquid formulation.

10. The pharmaceutical composition of claim 9, wherein the pharmaceutical composition is an aqueous formulation.

11. The pharmaceutical composition of claim 10, wherein the aqueous formulation is pyrogen free.

12. A pharmaceutical composition comprising the polypeptide of claim 2.

13. The pharmaceutical composition of claim 12, further comprising a pharmaceutically acceptable carrier or diluent.

14. The pharmaceutical composition of claim 13, wherein the pharmaceutical composition is a liquid formulation.

15. The pharmaceutical composition of claim 14, wherein the pharmaceutical composition is an aqueous formulation.

16. The pharmaceutical composition of claim 15, wherein the aqueous formulation is pyrogen free.