show that diabetics have impaired lung functions. It has been proposed that insulin resistance leads to airway inflammation. Habib et al., *Nitric Oxide Measurement From Blood To Lungs, Is There A Link?* Pak J Physiol 2007;3(1).

Nitric oxide is synthesized by the endothelium from L-arginine by nitric oxide synthase (NO synthase). NO synthase occurs in different isoforms, including a constitutive form (cNOS) and an inducible form (iNOS). The constitutive form is present in normal endothelial cells, neurons and some other tissues.

The therapeutic effect of an extremely diluted (or ultra-low) form of antibodies potentized by homeopathic technology has been discovered by the inventor of the present patent application, Dr. Oleg I. Epshtein. U.S. Patent No. 7,582,294 discloses a medicament for treating Benign Prostatic Hyperplasia or prostatitis by administration of a homeopathically activated form of antibodies to prostate specific antigen (PSA). U.S. Patent No. 7,700,096 discloses a homeopathically potentized form of antibodies to endothelial NO-synthase. The homeopathically potentized form of antibodies to endothelial NO-synthase is marketed in the Russian Federation and other countries under the name Impaza®.

SUMMARY

In a first aspect of the present disclosure, there is provided a pharmaceutical composition comprising a) an activated-potentiated form of an antibody to human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO synthase.

In a second aspect of the present disclosure, there is provided a pharmaceutical composition comprising a) an activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In a third aspect of the present disclosure there is provided a pharmaceutical composition comprising a) an activated-potentiated form of an antibody to human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase, wherein the insulin receptor consists of one alpha subunit and one beta subunit.

In a fourth aspect of the present disclosure, there is provided a pharmaceutical composition comprising pharmaceutically acceptable solid carrier, and a) an activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor in the form of a mixture of C12, C30, and C200 homeopathic dilutions impregnated onto said solid carrier, and b) activated-potentiated form of an antibody to endothelial NO-synthase in the form of mixture of C12, C30, and C200 homeopathic dilutions impregnated onto said solid carrier.

In one embodiment~~aspect~~, the present disclosure~~invention~~ provides a pharmaceutical composition for administration to a patient suffering from diseases of diabetes and other metabolic disorders, the composition comprises a) an activated-potentiated form of an antibody to human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In one embodiment~~aspect~~, the present disclosure~~invention~~ provides a pharmaceutical composition for administration to a patient suffering from diseases of diabetes and other metabolic disorders, the composition comprises a) an activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In one variant, the pharmaceutical composition of this embodiment~~aspect~~ of the present disclosure~~invention~~ comprises a) an activated-potentiated form of an antibody to human insulin receptor, and

b) an activated-potentiated form of an antibody to endothelial NO-synthase, wherein the insulin receptor molecule comprises at least one alpha subunit and at least one beta subunit.

In one variant, the pharmaceutical composition of this embodimentaspect of the present disclosureinvention includes activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor or the activated-potentiated form of an antibody to human insulin receptor in the form of a mixture of C12, C30, and C200 homeopathic dilutions impregnated onto a solid carrier. The activated-potentiated form of an antibody to endothelial NO-synthase in the form of mixture of C12, C30, and C200 homeopathic dilutions may be subsequently impregnated onto the solid carrier.

In another variant, the pharmaceutical composition of this embodimentaspect of the present disclosureinvention includes the activated-potentiated form of an antibody to endothelial NO-synthase is in the form of mixture of C12, C30, and C200 homeopathic dilutions impregnated onto a solid carrier. The activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor or the activated-potentiated form of an antibody to human insulin receptor is in the form of mixture of C12, C30, and C200 homeopathic dilutions may be subsequently impregnated onto the solid carrier.

Preferably, the activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor or the activated-potentiated form of an antibody to human insulin receptor is a monoclonal, polyclonal or natural antibody, more preferably, a polyclonal antibody. In one variant of this embodimentaspect of the present disclosureinvention, the activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor or the activated-potentiated form of an antibody to human insulin receptor is prepared by successive centesimal dilutions coupled with shaking of every dilution.

Preferably, the activated-potentiated form of an antibody to endothelial NO-synthase is a monoclonal, polyclonal or natural antibody, more preferably, a polyclonal antibody. In one variant of this embodimentaspect of the present disclosureinvention, the activated-potentiated form of an antibody to endothelial NO-synthase is prepared by successive centesimal dilutions coupled with shaking of every dilution.

In another embodimentaspect, the present disclosureinvention provides a method of treating a patient suffering from Type I, diabetes, the method comprising administering to the patient a combination of a) an activated-potentiated form of an antibody to human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In another embodimentaspect, the present disclosureinvention provides a method of treating a patient suffering from Type I diabetes, the method comprising administering to the patient a combination of a) an activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In another embodimentaspect, the present disclosureinvention provides a method of treating a patient suffering from Type II, diabetes, the method comprising administering to the patient a combination of a) an activated-potentiated form of an antibody to human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In another embodimentaspect, the present disclosureinvention provides a method of treating a patient suffering from Type II diabetes, the method comprising administering to the patient a combination of a) an activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In another embodimentaspect, the present disclosureinvention provides a method of reducing blood glucose level in a mammal, the method comprising administering to the mammal a combination of a) an activated-potentiated form of an antibody to human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In another embodimentaspect, the present disclosureinvention provides a method of reducing blood glucose level in a mammal, the method comprising administering to the mammal a combination of a) an activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In another embodimentaspect, the present disclosureinvention provides a method of treating insulin resistance in a mammal, the method comprising administering to the mammal a combination of a) an

activated-potentiated form of an antibody to human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In another embodimentaspect, the present disclosureinvention provides a method of treating insulin resistance in a mammal, the method comprising administering to the mammal a combination of a) an activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

In one variant of this embodimentaspect of the present disclosureinvention, there is provided administration of from one to two unit dosage forms of the activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor or an activated-potentiated form of an antibody to human insulin receptor, and from one to two unit dosage forms of the activated-potentiated form of an antibody to endothelial NO-synthase, each of the dosage form being administered from once daily to four times daily. Preferably, the one to two unit dosage forms of each of the activated-potentiated forms of antibodies is administered twice daily.

DESCRIPTION OF THE FIGURES

Figure 1 - Illustrates the effect of tested preparations on blood plasma glucose level of rats with streptozotocin-induced diabetes mellitus

Figure 2 - Illustrates the effect of tested preparations on day 14 of injection on indicators of area under concentration-time curve (AUC) in the glucose tolerance test in rats with streptozotocin-induced diabetes mellitus.

Figure 3 - Illustrates the effect of tested preparations on blood plasma glucose level of rats with spontaneous non-insulin-dependent diabetes mellitus.

Figure 4 - Illustrates the effect of tested preparations on day 28 of injection on indicators of area under concentration-time curve (AUC) in glucose tolerance test in rats with spontaneous non-insulin-dependent diabetes mellitus.

Figure 5 – Illustrates the dynamics of glucose and glycolated hemoglobin levels in patients with type 1 diabetes mellitus against background of taking IR Ab + NOS Ab preparation.

What is claimed is:

1. A pharmaceutical composition comprising a) an activated-potentiated form of an antibody to human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO synthase.

2. A pharmaceutical composition comprising a) an activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase.

3. A pharmaceutical composition comprising a) an activated-potentiated form of an antibody to human insulin receptor, and b) an activated-potentiated form of an antibody to endothelial NO-synthase, wherein the insulin receptor ~~molecule~~ consists of one alpha subunit and one beta subunit.

4. A pharmaceutical composition comprising pharmaceutically acceptable solid carrier, and a) an activated-potentiated form of an antibody to a C-terminal fragment of the beta subunit of human insulin receptor in the form of a mixture of C12, C30, and C200 homeopathic dilutions impregnated onto said solid carrier, and b) activated-potentiated form of an antibody to endothelial NO-synthase in the form of mixture of C12, C30, and C200 homeopathic dilutions impregnated onto said solid carrier.

5. The pharmaceutical composition of claims 1, 2, 3, or 4, wherein said antibody to human insulin receptor is monoclonal, polyclonal or natural antibody.

6. The pharmaceutical composition of claim 5, wherein said antibody to human insulin receptor is a polyclonal antibody.

7. The pharmaceutical composition of claim 6, the activated-potentiated form of an antibody to a human insulin receptor is prepared by successive centesimal dilutions coupled with shaking of every dilution.

8. The pharmaceutical composition of claims 1, 2, 3, or 4, wherein said antibody to endothelial NO-synthase is monoclonal, polyclonal or natural antibody.

9. The pharmaceutical composition of claim 8, wherein said antibody to endothelial NO-synthase is a polyclonal antibody.

10. The pharmaceutical composition of claim 9, the activated-potentiated form of an antibody to endothelial NO-synthase is prepared by successive centesimal dilutions coupled with shaking of every dilution.

11. The pharmaceutical composition of claim 1, wherein said human insulin receptor consists of sequence selected from group consisting of in SEQ ID No: 1, SEQ ID No: 2, SEQ ID No: 3, SEQ ID No: 4, SEQ ID No: 5, SEQ ID No: 6, SEQ ID No: 7, SEQ ID No: 8, SEQ ID No: 9, SEQ ID No: 10, SEQ ID No: 11, SEQ ID No: 12, SEQ ID No: 13, SEQ ID No: 14.

12. The pharmaceutical composition of claim 1, wherein said endothelial NO synthase consists of sequence provided in SEQ. ID No. 15, SEQ ID No: 16, SEQ ID No: 17, SEQ ID No: 18, SEQ ID No: 19, SEQ ID No: 20, SEQ ID No: 21, SEQ ID No: 22.

~~13. A method of treating Type I diabetes in a human patient, said method comprising administering the pharmaceutical composition of claims 1, 2, 3, or 4 to said patient.~~

~~14. The method of claim 13, wherein said pharmaceutical composition is administered to a patient in one solid dosage form per administration.~~

~~15. The method of claim 13, wherein said dosage form is a tablet.~~

~~16. The method of claim 15, wherein said tablet is obtained by direct compression.~~

~~17. The method of claim 15, wherein said tablet is administered from once daily to four times daily.~~

~~18. The method of claim 15, wherein said tablet is administered twice daily.~~

~~19. The method of claim 15, wherein said tablet is administered four times daily.~~

~~20. A method of treating Type II diabetes in a human patient, said method comprising administering the pharmaceutical composition of claims 1, 2, 3, or 4 to said patient.~~

~~21. The method of claim 20, wherein said pharmaceutical composition is administered to a patient in one solid dosage form per administration.~~

~~22. The method of claim 21, wherein said dosage form is a tablet.~~

~~23. The method of claim 22, wherein said tablet is obtained by direct compression.~~

~~24. The method of claim 22, wherein said tablet is administered from once daily to four times daily.~~

~~25. The method of claim 15, wherein said tablet is administered four times daily.~~

~~26. A method of reducing blood glucose level in a mammal, said method comprising administering the pharmaceutical composition of claims 1, 2, 3, or 4 to said mammal.~~

~~27. The method of claim 26, wherein said mammal is a human.~~

~~28. The method of claim 27, wherein said pharmaceutical composition is administered to a patient as one or two unit dosage forms.~~

~~29. The method of claim 28, wherein said dosage form(s) is/are administered from once daily to four times daily.~~

~~30. The method of claim 29, wherein said dosage form(s) is administered thrice daily.~~

~~31. A method of treating insulin resistance, said method comprising administering the pharmaceutical composition of claims 1, 2, 3, or 4 to saidmammal.~~

~~32. The method of claim 31, wherein said mammal is a human.~~

~~33. The method of claim 32, wherein said pharmaceutical composition is administered to a patient as one or two unit dosage forms.~~

~~34. The method of claim 33, wherein said dosage form(s) is/are administered from once daily to four times daily.~~

~~35. The method of claim 34, wherein said dosage form(s) is administered thrice daily.~~

~~36. The method of claim 13, said method further comprising administering insulin or other additional pharmaceutical agents suitable for treating Type I diabetes.~~

~~37. The method of claim 20, said method further comprising administering additional pharmaceutical agents suitable for treating Type II diabetes.~~

~~38. A pharmaceutical composition for use in treating a patient suffering from diabetes or other metabolic disorder, said composition having been obtained by providing a) an activated-potentiated form of an antibody to human insulin receptor and b) an activated-potentiated form of an antibody to endothelial NO-synthase, each prepared by consecutive repeated dilution and multiple shaking of each obtained solution in accordance with homeopathic technology, and then either combining the potentiated solutions by mixing them, or, alternatively, impregnating a carrier mass with said combined solution or with the solutions separately.~~

~~39. The pharmaceutical composition of claim 38, wherein said activated-potentiated form of an antibody to human insulin receptor is an activated-potentiated form of an antibody to a C-terminal fragment of human insulin receptor.~~