CLAIMS

1. A sustained-release formulation composition, comprising: sustained-release microspheres which include semaglutide or a pharmaceutically acceptable salt thereof, and poly(lactide-co-glycolide);

wherein the semaglutide or the pharmaceutically acceptable salt thereof is included in an amount of 3% by weight or more and less than 9% by weight of the sustained-release microspheres, and

wherein the poly(lactide-co-glycolide) is a mixture of low-viscosity PLGA having an intrinsic viscosity of 0.14 to 0.24 dL/g and high-viscosity PLGA having an intrinsic viscosity of 0.32 to 0.44 dL/g.

2. The sustained-release formulation composition according to claim 1, wherein a weight ratio of the low-viscosity PLGA and the high-viscosity PLGA in the mixture is 1: 0.2 to 5.

3. The sustained-release formulation composition according to claim 1, wherein a molar ratio of lactide to glycolide in the high-viscosity PLGA is 50: 45 to 55.

4. The sustained-release formulation composition

according to claim 1, wherein the sustained-release microspheres are prepared by dissolving the semaglutide or the pharmaceutically acceptable salt thereof and the poly(lactide-co-glycolide) in glacial acetic acid and spraying the same using an ultrasonic spray nozzle, followed by volatilizing the solvent using dry air.

5. The sustained-release formulation composition according to claim 4, wherein the ultrasonic spray nozzle has a frequency of 60 kHz.

6. The sustained-release formulation composition according to claim 1, wherein less than 5% of the semaglutide is released within 24 hours after administration to SD rats, and 30% or more is released within 2 weeks, or 60% or more is released within 4 weeks.

7. The sustained-release formulation composition according to claim 1, wherein the composition is to be administered to a subject at an interval of 1 to 3 months.

8. The sustained-release formulation composition according to claim 1, wherein the poly(lactide-co-glycolide) is 91 to 97% by weight of the sustained-release microspheres.

9. The sustained-release formulation composition according to claim 1, wherein the sustained-release microspheres have an average particle size of 15 to 25 μm.

10. The sustained-release formulation composition according to claim 1, wherein the composition is for use in the treatment of diabetes, obesity, non-alcoholic steatohepatitis or degenerative brain disease.

11. The sustained-release formulation composition according to claim 10, wherein the degenerative brain disease is any one selected from the group consisting of Parkinson's disease, Alzheimer's disease, Huntington's disease, Lou Gehrig's disease, Creutzfeldt-Jakob disease, stroke, and multiple sclerosis.

12. A method for production of a sustained-release formulation composition, the method comprising:

preparing a mixed solution by dissolving semaglutide or a pharmaceutically acceptable salt thereof and poly(lactide-co-glycolide) in an organic solvent; and

drying the mixed solution to obtain microspheres,

wherein the poly(lactide-co-glycolide) is a mixture of low-viscosity PLGA having an intrinsic viscosity of 0.14 to

0.24 dL/g and high-viscosity PLGA having an intrinsic viscosity of 0.32 to 0.44 dL/g.

13. The method according to claim 12, wherein a weight ratio of the low-viscosity PLGA and the high-viscosity PLGA in the mixture is 1: 0.2 to 5.

14. The method according to claim 12, wherein a molar ratio of lactide to glycolide in the high-viscosity PLGA is 50: 45 to 55.

15. The method according to claim 12, wherein the drying of the mixed solution is performed by a spray drying process.