CLAIMS

1. Use of a controlled-release formulation of a GLP-1 receptor agonist in the manufacture of a therapeutic agent for the treatment of levodopa-induced dyskinesia, wherein the therapeutic agent comprising a therapeutically effective amount of the controlled-release formulation of the GLP-1 receptor agonist is to be administered to a patient with levodopa-induced dyskinesia,

wherein the GLP-1 receptor agonist is exendin-4 or exenatide,

wherein the controlled-release formulation includes: a core containing the GLP-1 receptor agonist and a biodegradable polymer; and

wherein the biodegradable polymer is at least one selected from the group consisting of: polylactide, polyglycolide, poly(lactide-co-glycolide) as a copolymer of lactide and glycolide, polyorthoester, polyanhydride, polyhydroxybutyric acid, polycaprolactone and polyalkyl carbonate; a copolymer or mixture of two or more of said polymers; a copolymer of said polymer and polyethylene glycol; and a polymer-sugar complex in which said polymer or copolymer is combined with sugar.

2. Use of a controlled-release formulation of a GLP-1 receptor agonist in the manufacture of a therapeutic agent for the prevention of levodopa-induced dyskinesia, wherein the therapeutic agent comprising a prophylactically effective amount of the controlled-release formulation of the GLP-1 receptor agonist is to be administered to a Parkinson's disease patient who does not involve occurrence of levodopa-induced dyskinesia,

wherein the GLP-1 receptor agonist is exendin-4 or exenatide,

wherein the controlled-release formulation includes: a core

containing the GLP-1 receptor agonist and a biodegradable polymer; and

wherein the biodegradable polymer is at least one selected from the group consisting of: polylactide, polyglycolide, poly(lactide-co-glycolide) as a copolymer of lactide and glycolide, polyorthoester, polyanhydride, polyhydroxybutyric acid, polycaprolactone and polyalkyl carbonate; a copolymer or mixture of two or more of said polymers; a copolymer of said polymer and polyethylene glycol; and a polymer-sugar complex in which said polymer or copolymer is combined with sugar.

3. The use according to claim 1 or 2, wherein the patient has received administration of levodopa.

4. The use according to claim 1 or 2, wherein the therapeutic agent comprising the controlled-release formulation of the GLP-1 receptor agonist is to be administered simultaneously with levodopa or after administration of levodopa.

5. The use according to claim 1, wherein the therapeutically effective amount ranges from 0.01 μg/kg/day to 100 μg/kg/day.

6. The use according to claim 2, wherein the prophylactically effective amount ranges from 0.01 μg/kg/day to 100 μg/kg/day.

7. The use according to claim 1 or 2, wherein the controlled-release formulation includes a coating layer for the core.

8. Use of a controlled-release formulation of a GLP-1 receptor agonist in the manufacture of a therapeutic agent for the treatment of levodopa-induced dyskinesia,

wherein the GLP-1 receptor agonist is exendin-4 or exenatide,

wherein the controlled-release formulation includes: a core containing the GLP-1 receptor agonist and a biodegradable polymer; and

wherein the biodegradable polymer is at least one selected from the group consisting of: polylactide, polyglycolide, poly(lactide-co-glycolide) as a copolymer of lactide and glycolide, polyorthoester, polyanhydride, polyhydroxybutyric acid, polycaprolactone and polyalkyl carbonate; a copolymer or mixture of two or more of said polymers; a copolymer of said polymer and polyethylene glycol; and a polymer-sugar complex in which said polymer or copolymer is combined with sugar.