Claims

1. A method of producing a cell aggregate comprising telencephalon or a partial tissue thereof, or an progenitor tissue thereof, comprising obtaining a telencephalon marker-positive aggregate by culturing an aggregate of pluripotent stem cells in suspension in the presence of a Wnt signal inhibitor and a TGFβ signal inhibitor until not less than 50% of the cell aggregates in the culture become telencephalon marker-positive, and further culturing the obtained telencephalon marker-positive aggregate in suspension under a high oxygen partial pressure condition until a desired differentiation stage is reached,
wherein the partial tissue of telencephalon is cerebral cortex, basal ganglion, hippocampus or choroid plexus, and
wherein the high oxygen partial pressure condition is an oxygen partial pressure of 30 - 60%.

2. The production method according to claim 1, wherein the obtained cell aggregate comprises a telencephalon partial tissue selected from the group consisting of cerebral cortex, basal ganglion, hippocampus and choroid plexus, or a progenitor tissue thereof.

3. The production method according to claim 1 or 2, wherein the suspension culture under a high oxygen partial pressure condition is performed in a medium not containing a Wnt signal inhibitor and a TGFβ signal inhibitor, and in the presence of a Wnt signal enhancer.

4. The production method according to claim 1 or 2, wherein the suspension culture under a high oxygen partial pressure condition is performed in a medium not containing a Wnt signal inhibitor and a TGFβ signal inhibitor, and in the presence of a Wnt signal enhancer and a bone morphogenetic factor signal

transduction pathway activating substance.

5. A method of producing a cell aggregate comprising telencephalon or a partial tissue thereof, or an progenitor tissue thereof, comprising
(I) obtaining a telencephalon marker-positive aggregate by culturing an aggregate of pluripotent stem cells in suspension in the presence of a Wnt signal inhibitor and a TGFβ signal inhibitor until not less than 50% of the cell aggregates in the culture become telencephalon marker-positive,
(II) further culturing the telencephalon marker-positive aggregate obtained in (I) until a desired differentiation stage is reached, in suspension in the presence of a Wnt signal enhancer and a bone morphogenetic factor signal transduction pathway activating substance, and
(III) further culturing the cell aggregate obtained in (II) in suspension in the absence of a Wnt signal enhancer and a bone morphogenetic factor signal transduction pathway activating substance.

6. The production method according to claim 5, wherein the produced cell aggregate comprises, in continuous neuroepithelium, a cerebral cortical tissue or a progenitor tissue thereof, a choroid plexus tissue or a progenitor tissue thereof, and a hippocampal tissue or a progenitor tissue thereof.

7. The production method according to claim 5, wherein the produced cell aggregate comprises, in continuous neuroepithelium, a hippocampal tissue or a progenitor tissue thereof comprising a dentate gyrus tissue or a progenitor tissue thereof, and an Ammon's horn tissue or a progenitor tissue thereof.

8. The production method according to claim 7, wherein the

hippocampal tissue or a progenitor tissue further comprises cortical hem in the continuous neuroepithelium.

9. The production method according to claim 5, wherein the produced cell aggregate comprises an Ammon's horn tissue or a progenitor tissue thereof.

10. The production method according to claim 5, wherein the suspension culture in (II) and (III) is performed under a high oxygen partial pressure condition.

11. The production method according to claim 1 or 2, comprising treating the cell aggregate with a shh signal agonist.

12. The production method according to claim 1 or 2, comprising treating the cell aggregate with FGF8.

13. The production method according to claim 2, wherein the obtained cell aggregate comprises a cerebral cortical tissue or a progenitor tissue thereof having a multilayered structure comprising marginal zone, cortical plate, subplate, intermediate zone, subventricular zone and ventricular zone from the superficial portion to the deep portion.

14. The production method according to claim 11, wherein the obtained cell aggregate comprises basal ganglion or a progenitor tissue thereof.

15. The production method according to claim 12, wherein the obtained cell aggregate comprises rostral cerebral cortex or a progenitor tissue thereof.

16. The production method according to any one of claims 1 to 15, wherein the pluripotent stem cells are embryonic stem cells or induced pluripotent stem cells.

17. The production method according to any one of claims 1 to 16, wherein the pluripotent stem cells are derived from human.

18. The production method according to any one of claims 1 to 17, wherein the suspension culture is performed in the absence of feeder cells.

19. A method of producing a mature hippocampal neuron, comprising

(I) obtaining a cell aggregate comprising hippocampus or a progenitor tissue thereof by the production method according to any one of claims 1 to 18,

(II) dispersing the cell aggregate in (I), and

(III) further subjecting the dispersed cells to adhesion culture to induce a mature hippocampal neuron from the cells.