

Claims

1. A production method of a dopaminergic neuron, comprising culturing floor plate cells in a medium containing (i) a cAMP analogue and (ii) a MEK inhibitor.

2. The production method according to claim 1, wherein the medium further contains ascorbic acid or a salt thereof.

3. The production method according to claim 2, wherein the medium further contains an activator of activin receptor-like kinase-4,7.

10 4. The production method according to any one of claims 1 to 3, wherein the cAMP analogue is dibutyryl-cAMP.

5. The production method according to any one of claims 1 to 4, wherein the MEK inhibitor is

(i)

15 N-[(2R)-2,3-dihydroxypropoxy]-3,4-difluoro-2-[(2-fluoro-4-iodophenyl)amino]benzamide,

(ii)

2-(2-chloro-4-iodophenylamino)-N-cyclopropylmethoxy-3,4-difluorobenzamide, or

20 (iii) 2-[(1,2-dihydro-2-oxo-3H-indol-3-ylidene)methyl]-4-methyl-1H-pyrrole-3-propanoic acid.

6. The production method according to any one of claims 3 to 5, wherein the activator of activin receptor-like kinase-4,7 is activin.

7. The production method according to claim 3, wherein the cAMP analogue is dibutyryl-cAMP, the MEK inhibitor is

(i)

N-[(2R)-2,3-dihydroxypropoxy]-3,4-difluoro-2-[(2-fluoro-4-iodophenyl)amino]benzamide,

(ii)

2-(2-chloro-4-iodophenylamino)-N-cyclopropylmethoxy-3,4-difluorobenzamide, or

(iii) 2-[(1,2-dihydro-2-oxo-3H-indol-3-ylidene)methyl]-4-

5 methyl-1H-pyrrole-3-propanoic acid, and

the activator of activin receptor-like kinase-4,7 is activin.

8. A reagent for producing a dopaminergic neuron from floor plate cells, comprising

(i) a cAMP analogue and (ii) a MEK inhibitor,

10 with the proviso that the reagent is not a reagent consisting of hepatocyte culture medium without EGF, 10 mM 8-Br-cAMP, 1 μ M XAV 939 and 1 μ M PD032590.

9. The reagent according to claim 8, further comprising (iii) an activator of activin receptor-like kinase-
15 4,7.

10. A kit for producing a dopaminergic neuron from floor plate cells, comprising (i) a cAMP analogue and (ii) a MEK inhibitor,

with the proviso that the kit is not a kit consisting of
20 hepatocyte culture medium without EGF, 10 mM 8-Br-cAMP, 1 μ M XAV 939 and 1 μ M PD032590.

11. The kit according to claim 10, further comprising (iii) an activator of activin receptor-like kinase-4,7.

12. Use of (i) a cAMP analogue and (ii) a MEK inhibitor
25 for producing a dopaminergic neuron from floor plate cells.

13. Use of (i) a cAMP analogue, (ii) a MEK inhibitor and (iii) an activator of activin receptor-like kinase-4,7 for producing a dopaminergic neuron from floor plate cells.