(iii) exhibiting no neoplastic proliferation; and

(iv) having self-renewal ability.

[8] The cell preparation according to any one of [1] to [7] above, wherein the brain disorder associated with fetal growth retardation is selected from the group consisting of abnormal quality of movement, abnormal neurological development, cerebral palsy, cognitive impairment, behavior disorder and motor disability.

[9] The cell preparation according to any one of [1] to [8] above, wherein the pluripotent stem cells have the ability to engraft to brain tissue.

[10] The cell preparation according to any one of [1] to [9] above, which is to be administered to a human neonate, infant or child with the pluripotent stem cells at from approximately 1×10^5 cells/individual to approximately 1×10^8 cells/individual, as the therapeutically effective amount.

[11] The cell preparation according to any one of [1] to [10] above, which is to be administered to a human neonate, infant or child with the pluripotent stem cells in an amount of cells per body weight of approximately 1×10^5 cells/kg to approximately 1×10^8 cells/kg per target individual, as the therapeutically effective amount.

[12] Use of a cell preparation in the manufacture of a medicament for amelioration and/or treatment of a brain disorder associated with fetal growth retardation, wherein the cell preparation comprises pluripotent stem cells positive for SSEA-3 isolated from mesenchymal tissue or cultured mesenchymal cells of a living organism.

[ADVANTAGEOUS EFFECTS OF INVENTION]

[0011]

The present invention can drastically minimize brain disorders in subjects suffering from brain disorders associated with fetal growth retardation, by a brain tissue-regenerating mechanism in which Muse cells are administered through a vein or by another route to selectively accumulate them in damaged brain tissue, and the Muse cells differentiate to brain tissue-forming cells within the tissue.

BRIEF DESCRIPTION OF DRAWINGS

[0012]

FIG. 1A shows the results of a negative geotaxis test for behavior improvement in a fetal growth retardation rat model, using a Muse cell-administered group ("Muse"), a non-Muse cell-administered group ("non-Muse"), a group administered a cell preservation solution (STEM-CELLBANKER^R) alone ("vehicle"), and a sham group. The results are shown for each group after testing once per day for 4 successive days, using 8-11 day-old rats.

FIG. 1B shows results of a negative geotaxis test, similar to FIG. 1A, but as the average value for each rat calculated as the total measured time (sec) during the 4 days divided by 4.

FIG. 2 shows the results of a Rota Rod test for motor function improvement in a fetal

CLAIMS

1. Use of a cell preparation in the manufacture of a medicament for amelioration and/or treatment of a brain disorder associated with fetal growth retardation, wherein the cell preparation comprises pluripotent stem cells positive for SSEA-3 isolated from mesenchymal tissue or cultured mesenchymal cells of a living organism.

2. The use according to claim 1, wherein the cell preparation comprises a cell fraction wherein pluripotent stem cells positive for SSEA-3 have been concentrated by external stress treatment.

3. The use according to claim 1 or 2, wherein the pluripotent stem cells are CD105-positive.

4. The use according to any one of claims 1 to 3, wherein the pluripotent stem cells are CD117-negative and CD146-negative.

5. The use according to any one of claims 1 to 4, wherein the pluripotent stem cells are CD117-negative, CD146-negative, NG2-negative, CD34-negative, vWF-negative and CD271-negative.

6. The use according to any one of claims 1 to 5, wherein the pluripotent stem cells are CD34-negative, CD117-negative, CD146-negative, CD271-negative, NG2-negative, vWF-negative, Sox10-negative, Snai1-negative, Slug-negative, Tyrp1-negative and Dct-negative.

7. The use according to any one of claims 1 to 6, wherein the pluripotent stem cells have all of the following properties:

(i) low or non-existent telomerase activity;

(ii) having the ability to differentiate into any of the three germ layers;

(iii) exhibiting no neoplastic proliferation; and

(iv) having self-renewal ability.

8. The use according to any one of claims 1 to 7, wherein the brain disorder associated with fetal growth retardation is selected from the group consisting of abnormal quality of movement, abnormal neurological development, cerebral palsy, cognitive impairment, and behavior disorder.

9. The use according to any one of claims 1 to 8, wherein the pluripotent stem cells have the ability to engraft to brain tissue.

10. The use according to any one of claims 1 to 9 , wherein the medicament is to be administered to a human neonate, infant or child with the pluripotent stem cells at from approximately 1×10^5 cells/individual to approximately 1×10^8 cells/individual, as the therapeutically effective amount.

11. The use according to any one of claims 1 to 10, wherein the medicament is to be administered to a human neonate, infant or child with the pluripotent stem cells in an amount of cells per body weight of approximately 1×10^5 cells/kg to approximately 1×10^8 cells/kg per target individual, as the therapeutically effective amount.