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 cell preparation according to any one of [1] to [7] above, wherein the perinatal brain damage is selected from the group consisting of learning disability, motor disability, cerebral palsy, behavior disorder, mental development abnormality, sensory disorder, speech disorder, epilepsy, dysphagia and abnormal respiratory control.

[9] The cell preparation according to any one of [1] to [8] above, wherein the pluripotent stem cells have the ability to engraft into 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 3×10^4 cells/kg to approximately 3×10^7 cells/kg per target individual, as the therapeutically effective amount.

[12] Use of a cell preparation comprising pluripotent stem cells positive for SSEA-3 isolated from mesenchymal tissue of or cultured mesenchymal cells in the manufacture of a medicament for amelioration and/or treatment of perinatal brain damage.

[ADVANTAGEOUS EFFECTS OF INVENTION]

[0011]

The present invention can drastically minimize perinatal brain damage in a subject (child) suffering from perinatal brain damage, by a brain tissue-regenerating mechanism in which Muse cells are administered through the veins 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. 1 shows the results of confirming engraftment of Muse cells in the brain tissue when administered to an HIE rat model (postnatal age of 48 days; 10 days after administration).

FIG. 2 shows the results of a Rota-rod treadmill test for motor function in an HIE rat model, using a Muse cell-administered group ("Muse"), a group with addition of a cell suspension (physiological saline) alone ("vehicle") and a sham-operated group ("sham") ("Short period": 1 month after birth; "Long period": 5 months after birth).

CLAIMS

1. Use of a cell preparation comprising pluripotent stem cells positive for SSEA-3 isolated from mesenchymal tissue of or cultured mesenchymal cells in the manufacture of a medicament for amelioration and/or treatment of perinatal brain damage.

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 above, wherein the pluripotent stem cells are CD34-negative, CD117-negative, CD146-negative, CD271-negative, NG2-negative, vWF-negative, Sox10-negative, Snail-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 perinatal brain damage is selected from the group consisting of learning disability, motor disability, cerebral palsy, behavior disorder, mental development abnormality, sensory disorder, speech disorder, epilepsy, dysphagia and abnormal respiratory control.

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

10. The use according to any one of claims 1 to 9, 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 use according to any one of claims 1 to 10, 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 3×10^4 cells/kg to approximately 3×10^7 cells/kg per target individual, as the therapeutically effective amount.