The present inventors found that the suspension of mammalian stem cells in a trehalose-containing solution suppressed the aggregation of the mammalian stem cells and suppressed a reduction in survival rate (Japanese Patent Application No. 2010-251273). Possible causes of pulmonary embolism formation by stem cell transplantation include that cell masses in each of which the stem cells are aggregated clog capillary blood vessels of the pulmonary artery; however, only the simple inhibition of the cell aggregation has also been well thought not to inhibit the pulmonary embolism formation by stem cells, because whereas the size of stem cells, for example, mesenchymal stem cells (MSC), is 10 to 50 μm, the inner diameter of capillary blood vessels of pulmonary artery is 10 μm, that is, the size of MSC is larger than that of capillary blood vessels of the pulmonary artery. The present inventors have found that when MSC is suspended in a trehalose-containing lactate Ringer's solution and the MSC-suspended trehalose-containing lactate Ringer's solution is intravenously administered to rats, no reduction in the blood oxygen partial pressure is observed during or after administration and the accumulation of MSC populations in the lung is decreased compared to that for the use of a trehalose-free lactate Ringer's solution or a physiological saline solution as a control as a suspension, thereby accomplishing the present invention.

[0011]

Thus, the present ~~invention~~ disclosure relates to: (1) a mammalian cell suspension for preventing pulmonary embolism formation during administration of mammalian

cells through a blood vessel, comprising mammalian cells and trehalose or its derivative, or a salt thereof; (2) the mammalian cell suspension according to (1) above, wherein the mammalian cells are mammalian stem cells; (3) the mammalian cell suspension according to (2) above, wherein the mammalian stem cells are mammalian mesenchymal stem cells or mammalian pluripotent stem cells; (4) the mammalian cell suspension according to any one of (1) to (3) above, wherein the mammalian cells comprise the mammalian cells in a single cell state; and (5) the mammalian cell suspension according to any one of (1) to (4) above, wherein trehalose or its derivative, or a salt thereof has a concentration ranging from 0.1 to 20%.

[0012]

The present ~~invention~~ disclosure also relates to: (6) a preventive agent against pulmonary embolism formation during administration of mammalian cells through a blood vessel, comprising trehalose or its derivative, or a salt thereof as an active ingredient; (7) the preventive agent according to (6) above, wherein the mammalian cells are mammalian stem cells; and (8) the preventive agent according to (7) above, wherein the mammalian stem cells are mammalian mesenchymal stem cells or mammalian pluripotent stem cells.

The present invention further relates to use of trehalose or a salt thereof as an active ingredient for preventing pulmonary embolism formation, in the preparation of an agent for preventing pulmonary embolism formation during administration of mammalian cells through a blood vessel.

[0013]

The present ~~invention~~ disclosure further relates to: (9) use of trehalose or its derivative, or a salt thereof in the preparation of a preventive agent against pulmonary embolism formation during administration of mammalian cells through a blood vessel; and (10) the use according

CLAIMS

1. A mammalian cell suspension for preventing pulmonary embolism formation during administration of mammalian cells through a blood vessel, comprising mammalian cells and trehalose or its derivative, or a salt thereof.

2. The mammalian cell suspension according to claim 1, wherein the mammalian cells are mammalian stem cells.

3. The mammalian cell suspension according to claim 2, wherein the mammalian stem cells are mammalian mesenchymal stem cells or mammalian pluripotent stem cells.

4. The mammalian cell suspension according to any one of claims 1 to 3, wherein the mammalian cells comprise the mammalian cells in a single cell state.

5. The mammalian cell suspension according to any one of claims 1 to 4, wherein trehalose or its derivative, or a salt thereof has a concentration ranging from 0.1 to 20%.

6. A preventive agent against pulmonary embolism formation during administration of mammalian cells through a blood vessel, comprising trehalose or its derivative, or a salt thereof as an active ingredient.

7. The preventive agent according to claim 6, wherein the mammalian cells are mammalian stem cells.

8. The preventive agent according to claim 7, wherein the mammalian stem cells are mammalian mesenchymal stem cells or mammalian pluripotent stem cells.

9. Use of trehalose or its derivative, or a salt thereof in the preparation of a preventive agent against pulmonary embolism formation during administration of mammalian cells through a blood vessel.

10. The use according to claim 9, wherein the mammalian cells are mammalian stem cells.

CLAIMS

1. Use of trehalose or a salt thereof as an active ingredient for preventing pulmonary embolism formation, in the preparation of an agent for preventing pulmonary embolism formation during administration of mammalian cells through a blood vessel.

2. The use according to claim 1, wherein the mammalian cells are mammalian stem cells.

3. The use according to claim 2, wherein the mammalian stem cells are mammalian mesenchymal stem cells or mammalian pluripotent stem cells.

4. The use according to any one of claims 1 to 3, wherein the mammalian cells comprise the mammalian cells in a single cell state.

5. The use according to any one of claims 1 to 4, wherein the trehalose or a salt thereof has a concentration ranging from 0.1 to 20%.