[0005] The present disclosure provides a composition for promoting the proliferation of pluripotent stem cells and a method for promoting the proliferation of pluripotent stem cells.

Summary

[0005a] In one aspect, the present invention refers to a method for promoting proliferation of pluripotent stem cells, comprising: seeding pluripotent stem cells in a single-cell state or a dispersed state; adding hemagglutinin to a culture medium comprising the pluripotent stem cells in a single-cell state or a dispersed state before a colony of the pluripotent stem cells is formed and culturing the pluripotent stem cells in the culture medium to which hemagglutinin has been added, wherein the hemagglutinin has the ability to inhibit cell-cell adhesion. In another aspect, the present invention refers to a method for promoting proliferation of pluripotent stem cells, comprising: performing a suspension culture of pluripotent stem cells to form a cell aggregate; adding hemagglutinin to a culture medium for suspension culture of a cell aggregate of pluripotent stem cells; and culturing the pluripotent stem cells in the culture medium to which hemagglutinin has been added without dividing the cell aggregate into small aggregates, wherein the hemagglutinin has the ability to inhibit cell-cell adhesion. In yet another aspect, the present invention refers to a method for culturing pluripotent stem cells; comprising: performing the method as disclosed herein.

Means for Solving Problem

[0006] In one aspect, the present disclosure relates to a composition for promoting the proliferation of pluripotent stem cells. The composition contains hemagglutinin or modified hemagglutinin as an active ingredient.

[0007] In another aspect, the present disclosure relates to a method for promoting the proliferation of pluripotent stem cells. The method includes culturing pluripotent stem cells in a culture medium to which the proliferation promoting composition of the present disclosure has been added.

[0008] In yet another aspect, the present disclosure relates to a method for culturing pluripotent stem cells. The method includes performing the proliferation promoting method of the present disclosure.

Effects of the Invention

[0009] In one or more embodiments, the present disclosure has the effect of being able to promote the proliferation of pluripotent stem cells while maintaining their undifferentiated state.

CLAIMS

[1] A method for promoting proliferation of pluripotent stem cells, comprising:

seeding pluripotent stem cells in a single-cell state or a dispersed state; adding hemagglutinin to a culture medium comprising the pluripotent stem cells in a single-cell state or a dispersed state before a colony of the pluripotent stem cells is formed and

culturing the pluripotent stem cells in the culture medium to which hemagglutinin has been added,

wherein the hemagglutinin has the ability to inhibit cell-cell adhesion.

[2] A method for promoting proliferation of pluripotent stem cells, comprising:

performing a suspension culture of pluripotent stem cells to form a cell aggregate;

adding hemagglutinin to a culture medium for suspension culture of a cell aggregate of pluripotent stem cells; and

culturing the pluripotent stem cells in the culture medium to which hemagglutinin has been added without dividing the cell aggregate into small aggregates,

wherein the hemagglutinin has the ability to inhibit cell-cell adhesion.

[3] The method according to claim 1, comprising:

preparing the pluripotent stem cells in a single-cell state or a dispersed state by dispersing a cell aggregate of the pluripotent stem cells into at least one of single cell and cell population with a cell dispersion treatment.

[4] The method according to claim 1, wherein the culturing is performed by monolayer culture.

[5] The method according to claim 2, wherein the culturing of pluripotent stem cells is performed by using a bioreactor.

[6] The method according to any one of claims 1 to 5, wherein the hemagglutinin is hemagglutinin of *Clostridium botulinum*.

[7] The method according to any one of claims 1 to 6, wherein the hemagglutinin is a complex composed of hemagglutinin subcomponents HA2 (HA17) and HA3 (HA70) of the neurotoxin complex of *Clostridium botulinum*, or a complex composed of hemagglutinin subcomponents HA1 (HA33), HA2 (HA17), and HA3 (HA70) of the neurotoxin complex of *Clostridium botulinum*.

[8] The method according to claim 7, wherein the subcomponent HA3 (HA70) is of *Clostridium botulinum* type A or *Clostridium botulinum* type B.

[9] The method according to any one of claims 1 to 8, wherein the concentration of the hemagglutinin in the culture medium is 5 nM or more and 200 nM or less.

[10] A method for culturing pluripotent stem cells; comprising:
performing the method according to any one of claims 1 to 9.