METHODS OF CULTURING LIVER-DERIVED CELLS AND CULTURE SYSTEMS CONTAINING LIVER-DERIVED CELLS

[Technical Field]

[0001]

This invention relates to a culture method of liver-derived cells and a culture system containing liver-derived cells.

[Related Art]

[0002]

Conventionally, it has beben known that hepatocytes are cultured with feeder cells manufactured from fibroblasts, endothelial cells, epithelial cells, etc. (JP2009-183299A; JP2010-148386A; JP2007-516706A), whereby the hepatocytes form spheroids (JP2010-148386A), and feeder cells provide hepatocytes with intracellular matrix and diffusible factors such as growth factors for proliferation and expansion of hepatocytes.

[Summary of the invention]

[Problem to be solved by the invention]

[0003]

It is an object of this invention to provide a culture method of liver-derived cells and a culture system containing liver-derived cells.

[Summary of the Invention]

[0004]

One aspect of the present invention is a method for culturing liver-derived cells, comprising co-culturing the liver-derived cells with one or more types of cells selected from a group consisting of intestine-derived cells, lung-derived cells, and embryonic membrane-derived cells. Head-derived cells and/or kidney-derived cells may also be co-cultured.

[0004a]

In another aspect, provided herein is a culture method of liver-derived cells, comprising the step of co-culturing the liver-derived cells intestine-derived cells, and/or lung-derived cells, wherein the intestine-derived cells and the lung-derived cells have been obtained from an avian embryo.

[0004b]

In another aspect, provided herein is a culture method of liver-derived cells, comprising the step of co-culturing the liver-derived cells with one or more types of cells selected from a group consisting of intestine-derived cells, lung-derived cells, and embryonic membrane-derived cells, wherein head-derived cells and/or kidney-derived cells are further co-cultured.

[0004c]

In another aspect, provided herein is a culture method for liver-derived cells, comprising the step of culturing the liver-derived cells in the presence of a culture supernatant obtained by culturing intestine-derived cells, and/or lung-derived cells, wherein the intestine-derived cells and the lung-derived cells have been obtained from an avian embryo.

[0004d]

In another aspect, provided herein is a culture method for liver-derived cells, comprising the step of culturing the liver-derived cells in the presence of a culture supernatant obtained by culturing one or more types of cells selected from the group consisting of intestine-derived cells, lung-derived cells, and embryonic membrane-derived cells, wherein the culture supernatant comprises a culture supernatant obtained by culturing the one or more types of cells further with head-derived cells and/or kidney-derived cells.

[0004e]

In another aspect, provided herein is a culture system for cells wherein liver-derived cells, and intestine-derived cells and/or lung-derived cells, are co-cultured, wherein the intestine-derived cells and the lung-derived cells have been obtained from an avian embryo.

[0004f]

In another aspect, provided herein is a culture system for cells, wherein liver-derived cells, and one or more types of cells selected from the group consisting of intestine-derived cells, lung-derived cells, and embryonic membrane-derived cells, and wherein head-derived cells and/or kidney-derived cells are further co-cultured.

[0004g]

In another aspect, provided herein is a culture system for liver-derived cells, comprising a culture supernatant obtained by culturing intestine-derived cells, and/or lung-derived cells, wherein the intestine-derived cells and the lung-derived cells have been obtained from an avian embryo.

[0004h]

In another aspect, provided herein is a culture system for liver-derived cells, comprising a culture supernatant obtained by culturing one or more types of cells selected from a group consisting of intestine-derived cells, and/or lung-derived cells, and embryonic membrane-derived cells, and a culture supernatant obtained by culturing head-derived cells and/or kidney-derived cells.

[0005]

Another aspect of the present invention is a method for culturing liver-derived cells, comprising culturing the liver-derived cells in the presence of a culture supernatant obtained by culturing one or more types of cells selected from the group consisting of intestine-derived cells, lung-derived cells, and embryonic membrane-derived cells. The above-mentioned culture supernatant may comprise culture supernatant obtained by culturing the one or more types of cells further with head-derived cells and/or kidney-derived cells. The above-mentioned culture supernatant may comprise culture supernatant obtained by culturing one or

more types of cells further with liver-derived cells. The culture for obtaining the above-mentioned culture supernatant may be a co-culture.

[0006]

A further aspect of the present invention is a method for culturing embryonic membrane-derived cells, comprising co-culturing liver-derived cells with one or more types