proteins, steroid hormones and serum-derived components, which are problematic for use in foods.

[0004]

The use of cell culture media for cultured meat production has been attempted using various approaches. These include media utilizing organ cell products (PTL 1: Japanese Patent Publication No. 6111510), media utilizing algae products (NPL 3: Scientific Reports. 2017; 7:41594), media utilizing food residue hydrolysates (NPL 4: Food Funct., 2020, 11, 2477-2488), and media utilizing other food material components (PTL 2: International Patent Publication No. WO2021/148955, NPL 5: Jpn J Exp Med. 1985 Apr; 55(2):45-51, NPL 6: Prog Immunobiol Stand. 1971; 5:202-8, NPL 7: BMC Biotechnology. 2023 Feb 8; 23(1):4).

[CITATION LIST]

[PATENT LITERATURE]

[0005]

[PTL 1] Japanese Patent Publication No. 6111510

[PTL 2] International Patent Publication No. WO2021/148955

[NON PATENT LITERATURE]

[0006]

[NPL 1] ALTEX. 2018; 35(1):99-118.

[NPL 2] The Canadian Journal of Chem Engineering 2016, Vol. 94, (10) 1855-1862

[NPL 3] Scientific Reports. 2017; 7:41594

[NPL 4] Food Funct. 2020, 11, 2477-2488

[NPL 5] Jpn J Exp Med. 1985 Apr; 55(2):45-51

[NPL 6] Prog Immunobiol Stand. 1971; 5:202-8

[NPL 7] BMC Biotechnology . 2023 Feb 8; 23(1):4.

SUMMARY

[TECHNICAL PROBLEM]

[0007]

The object of the present disclosure is to describe a culture medium which allows large-scale culturing of cells to be used for production of cultured meat, by addition of food material components as cell growth promoting agents.

[SOLUTION TO PROBLEM]

[0008]

The present inventors have ardently studied culture media usable for production of cultured

meat, and have completed this invention upon finding that adding egg white or dried egg white as a cell growth promoting agent to a medium allows high proliferative activity for cells used for cultured meat. In some examples, the present disclosure relates to the following:

[1] A cell proliferation medium containing basal medium and egg white or dried egg white as a cell growth promoting agent.

[1-2] The use of egg white or dried egg white for production of a cell proliferation medium.

[1-3] The use of egg white or dried egg white for production of a cell growth promoting agent.

[2] The medium according to [1], or the use according to [1-2], wherein the proliferated cells are cells to be used for producing cultured meat.

[3] The medium according to [1] or [2], or the use according to [1-2], [1-3] or [2], wherein the medium does not contain animal-derived serum.

[4] The medium according to [3] or its use, wherein the animal-derived serum is fetal bovine serum (FBS).

[5] The medium according to any one of [1] to [4], or the use according to [1-2], [1-3] or [2-4], wherein the cells include fibroblasts or muscle tissue cells.

[6] The medium according to any one of [1] to [5], or the use according to [1-2], [1-3] or [2-5], wherein the cells are cells derived from a cow, pig or chicken.

[7] A method for preparing cells for producing cultured meat, the method comprising a step of culturing cells in medium containing basal medium and egg white or dried egg white as a cell growth promoting agent.

[8] The method according to [7], wherein the medium does not contain animal-derived serum.

[9] The method according to [8], wherein the animal-derived serum is fetal bovine serum (FBS).

[10] The method according to any one of [7] to [9], wherein the cells are cells derived from a cow, pig or chicken.

[11] The method according to [10], wherein the cells include at least one type of cell selected from the group consisting of fibroblasts and muscle tissue cells.

[12] A method for producing cultured meat, the method comprising a step of accumulating cells prepared by the method according to any one of [7] to [11].

[13] The method according to [12], wherein the prepared cells are accumulated together with one or more substances selected from the group consisting of other cells, blood, tissue and extracellular matrix.

[14] The method according to [13], wherein the other cells are cultured cells or cells acquired from an animal.

[15] The method according to any one of [12] to [14], which includes further culturing after accumulation.

[16] A cell growth promoting agent for producing cultured meat, which comprises egg white or dried egg white.

[17] The cell growth promoting agent according to [16], which is added to animal-derived serum-free medium.

[18] The cell growth promoting agent according to [16] or [17], which promotes growth of at least one type of cell selected from the group consisting of fibroblasts and muscle tissue cells.

[19] The cell growth promoting agent according to [18], wherein the cells are cells from a cow, pig or chicken.

[0008a] In one aspect, the disclosure refers to a cell proliferation medium for proliferating cells for producing cultured meat, comprising basal medium and egg white or dried egg white as a cell growth promoting agent, wherein the cells for said cultured meat production are fibroblast or myoblast cells derived from livestock, the medium does not contain animal-derived serum.

[0008b] In another aspect, the disclosure refers to a method for preparing cells for producing cultured meat, the method comprising a step of culturing cells in medium containing basal medium and egg white or dried egg white as a cell growth promoting agent, but not containing animal-derived serum, wherein the cells are fibroblast or myoblast cells derived from livestock.

[0008c] In another aspect, the disclosure refers to a method for producing cultured meat, the method comprising a step of accumulating cells prepared by the method disclosed herein.

[0008d] In another aspect, the disclosure refers to a cell growth promoting agent for producing cultured meat, comprising egg white or dried egg white, wherein the cells for said cultured meat production are fibroblast or myoblast cells derived from livestock, the agent is intended to be added to an animal-derived serum free medium.

[ADVANTAGEOUS EFFECTS OF INVENTION]

[0009]

By adding egg white or dried egg white to basal medium it is possible to formulate a cell culture medium that promote enhanced cell growth.

BRIEF DESCRIPTION OF DRAWINGS

[0010]

Fig. 1 shows the results of screening for food material components that enhance cell proliferation, when culturing bovine fibroblasts (A) and bovine myoblasts (B) in serum-free medium.

Fig. 2 shows the results of screening for food material components that enhance cell proliferation, when culturing chicken fibroblasts (A) and chicken myoblasts (B) in serum-free

medium.

Fig. 3 shows cell proliferation rates with respect to cell counts for culturing pig fibroblasts in serum-free medium, with culturing in dried egg white-added medium and FBS-added medium.

Fig. 4 is a graph showing the concentration-dependent growth promoting effect when using egg white as a cell growth promoting agent when culturing chicken fibroblasts (A) and pig fibroblasts (B) in serum-free medium.

Fig. 5 shows the results of molecular weight analysis of an egg white sample after freeze-drying.

DESCRIPTION OF EMBODIMENTS

[0011]

The present invention relates to a cell proliferation medium containing basal medium and

CLAIMS

[Claim 1]

A cell proliferation medium for proliferating cells for producing cultured meat, comprising basal medium and egg white or dried egg white as a cell growth promoting agent, wherein the cells for said cultured meat production are fibroblast or myoblast cells derived from livestock, the medium does not contain animal-derived serum.

[Claim 2]

The medium according to claim 1, wherein the animal-derived serum is fetal bovine serum (FBS).

[Claim 3]

The medium according to claim 1 or 2, wherein the cells are derived from a cow, pig or chicken.

[Claim 4]

A method for preparing cells for producing cultured meat, the method comprising a step of culturing cells in medium containing basal medium and egg white or dried egg white as a cell growth promoting agent, but not containing animal-derived serum, wherein the cells are fibroblast or myoblast cells derived from livestock.

[Claim 5]

The method according to claim 4, wherein the animal-derived serum is fetal bovine serum (FBS).

[Claim 6]

The method according to claim 4 or 5, wherein the cells are derived from a cow, pig or chicken.

[Claim 7]

A method for producing cultured meat, the method comprising a step of accumulating cells prepared by the method according to any one of claims 4 to 6.

[Claim 8]

The method according to claim 7, wherein the prepared cells are accumulated together with

one or more substances selected from the group consisting of other cells, blood, tissue and extracellular matrix.

[Claim 9]

The method according to claim 8, wherein the other cells are cultured cells or cells acquired from an animal.

[Claim 10]

The method according to claim 7, further comprising culturing after accumulation.

[Claim 11]

A cell growth promoting agent for producing cultured meat, comprising egg white or dried egg white, wherein the cells for said cultured meat production are fibroblast or myoblast cells derived from livestock, the agent is intended to be added to an animal-derived serum free medium.

[Claim 12]

The cell growth promoting agent according to claim 11, wherein the cells are derived from a cow, pig or chicken.