Claims

[Claim 1]

A method for producing an artificial three-dimensional muscular tissue, the method comprising:

(i) disposing a first muscular tissue support, a second muscular tissue support, and muscle cells to constitute a three-dimensional muscular tissue precursor, wherein the muscle cells are arranged to form multiple lines in a supporting bath comprising a gel and a culture medium, wherein the each line has a first end and a second end, the first ends of the lines in the supporting bath are each arranged close to the first muscular tissue support and the second ends of the lines in the supporting bath are each arranged close to the second muscular tissue support,

(ii) dissolving or decomposing the gel, and

(iii) culturing the muscle cells of the three-dimensional muscular tissue precursor in the culture medium, thereby obtaining the artificial three-dimensional muscular tissue.

[Claim 2]

The method according to claim 1, wherein the (ii) further comprises removing the gel.

[Claim 3]

The method according to claim 2, comprising:

(i) disposing a first muscular tissue support, a second muscular tissue support, and muscle cells to constitute a three-dimensional muscular tissue precursor, wherein the muscle cells are arranged to from multiple lines in a supporting bath comprising a gel and a culture medium, the first ends of the lines in the supporting bath are arranged close to the first muscular tissue support and the second ends of the lines in the supporting bath are each arranged close to the second muscular tissue support,

(ii) dissolving or decomposing, and removing the gel, and

(iii) culturing the muscle cells of the three-dimensional muscular tissue precursor in a culture medium, thereby obtaining an artificial three-dimensional muscular tissue,

wherein the (i), the (ii) and the (iii) are performed in this order.

[Claim 4]

The method according to claim 1, wherein additional culture medium is added before the (iii) culturing.

[Claim 5]

The method according to any one of claims 1 to 4, wherein the (iii) culturing comprises exchanging the culture medium.

[Claim 6]

The method for producing according to claim 1, wherein the artificial three-dimensional muscular tissue has a fascicle of muscle fibers, and wherein the (i) comprises disposing muscle cells in a form of a plurality of lines in the gel.

[Claim 7]

The method according to any one of claims 1 to 6, wherein the gel in the supporting bath has thixotropy.

[Claim 8]

The method according to any one of claims 1 to 7, wherein the muscle cells are disposed in the form of a plurality of lines by discharging using a multi-nozzle dispenser.

[Claim 9]

The method according to any one of claims 1 to 8, further comprising gelating the first muscular tissue support and/or the second muscular tissue support.

[Claim 10]

The method according to claim 9, wherein the first muscular tissue support and/or the second muscular tissue support are gelated after the (i).

[Claim 11]

The method according to any one of claims 1 to 10, wherein at least one selected from the group consisting of the first muscular tissue support and the second muscular tissue support comprises collagen.

[Claim 12]

The method according to any one of claims 1 to 4, further comprising adding and assembling adipocytes and vascular cells based on a ratio between fat tissue, vascular tissue, and muscular tissue of commercial beef.

[Claim 13]

The method according to any one of claims 1 to 4, further comprising adding at least one selected from the group consisting of a protein, fat, carbohydrate, vitamin, mineral, fiber, fatty acid, amino acid, flavor material, and coloring material, for regulating at least one selected from the group consisting of the texture, nutritive values, taste, and color.