

Claims

[Claim 1]

A supporting bath for culturing three-dimensional tissue, wherein a bulk gel containing a polymer and water and having thixotropy is formed in the bath, wherein the bulk gel is capable of dissolving in a solvent, wherein the bulk gel contains a polysaccharide as the polymer, wherein a concentration of the polysaccharide is 0.001% by weight to 5% by weight with respect to a total amount of the water and the polysaccharide, and wherein a bioink containing cells is ejected from a nozzle dispenser into the bulk gel formed in the supporting bath.

[Claim 2]

The supporting bath according to claim 1, wherein a concentration of the polysaccharide is 0.05% by weight to 2.0% by weight with respect to a total amount of the water and the polysaccharide.

[Claim 3]

The supporting bath according to claim 1 or 2, wherein the polysaccharide is gellan gum.

[Claim 4]

The supporting bath according to any one of claims 1 to 3, wherein the bulk gel formed in the bath is dissolved using an aqueous tris(hydroxymethyl)aminomethane solution.

[Claim 5]

A method for producing cultured three-dimensional tissue, comprising:

- (i) a step of forming a three-dimensional tissue precursor in a supporting bath by ejecting a bioink containing cells from a nozzle dispenser into a gel formed in the supporting bath while moving the nozzle at a traveling speed of 0.1 mm/s or more;
wherein the gel is a bulk gel containing a polymer and water and having thixotropy, wherein the bulk gel is capable of dissolving in a solvent, wherein the bulk gel contains a polysaccharide as the polymer, and wherein a concentration of the polysaccharide is 0.001% by weight to 5% by weight with respect to a total amount of the water and the polysaccharide;
- (ii) a step of dissolving the bulk gel in the supporting bath; and
- (iii) a step of, in a solution obtained by dissolving the bulk gel, culturing the formed three-dimensional tissue precursor to produce a three-dimensional tissue and culturing the three-dimensional tissue.

[Claim 6]

A method for producing cultured three-dimensional tissue, comprising:

- (i) a step of forming a three-dimensional tissue precursor in a supporting bath by ejecting a bioink containing cells from a nozzle dispenser into a gel

formed in the supporting bath while moving the nozzle at a traveling speed of 0.1 mm/s or more;

wherein the gel is a bulk gel containing a polymer and water and having thixotropy, wherein the bulk gel is capable of dissolving in a solvent, wherein the bulk gel contains a polysaccharide as the polymer, and wherein a concentration of the polysaccharide is 0.001% by weight to 5% by weight with respect to a total amount of the water and the polysaccharide;

(ii) a step of dissolving the bulk gel in the supporting bath;

(iii) a step of removing the dissolved bulk gel after the dissolution;

(iv) a step of adding a culture medium comprising a culture component; and

(v) a step of culturing the formed three-dimensional tissue precursor to produce a three-dimensional tissue and culturing the three-dimensional tissue in the culture medium.

[Claim 7]

The method according to claim 5 or 6, wherein the bulk gel is dissolved in the solvent.

[Claim 8]

A supporting bath used in the method according to any one of claims 5 to 7, the supporting bath comprises the bulk gel containing the polysaccharide, wherein the concentration of the polysaccharide is 0.001% by weight

to 5% by weight with respect to a total amount of the water and the polysaccharide.

[Claim 9]

The supporting bath according to claim 8, wherein a concentration of the polysaccharide is 0.05% by weight to 2.0% by weight with respect to a total amount of the water and the polysaccharide.

[Claim 10]

The supporting bath according to claim 8 or 9, wherein the polysaccharide is gellan gum.