Non Patent Literature 3: Scientific Reports, 5, 9563 (2015)

Non Patent Literature 4: Transplantation, 74, 1414-9 (2002)

Summary of Invention

[0005a] In one aspect, provided herein is a preservation method for retinal tissue, comprising preserving retinal tissue in a preservation solution having a potassium ion concentration of more than 0 mM and less than 115 mM at a preservation temperature of 12°C to 22°C, and wherein the retinal tissue has a continuous epithelium structure, and has a cell layer comprising a photoreceptor precursor cell, and a cell layer comprising a neural retinal precursor cell.

[0005b] In another aspect, provided herein is a transport method for retinal tissue, comprising transporting retinal tissue in a preservation solution having a potassium ion concentration of more than 0 mM and less than 115 mM at a preservation temperature of 12°C to 22°C, wherein the retinal tissue has a continuous epithelium structure, and has a cell layer comprising a photoreceptor precursor cell, and a cell layer comprising a neural retinal precursor cell.

Technical Problem

[0006] An object of the present invention is to provide a preservation method for neural tissue for several hours to several weeks without freezing, a preservation solution therefor, a transport method for neural tissue in accordance with the method and using the preservation solution, and a composition for transplantation.

Solution to Problem

[0007] The present inventors conducted intensive studies with a view to attaining the above object. As a result, they found that neural tissue can be preserved while maintaining a function thereof for several days in a preservation solution having a potassium ion concentration of less than 115 mM at a preservation temperature of 8°C to 30°C, and arrived at the present invention.

[0008] More specifically, the present invention relates to the following items.

[1] A preservation method for neural tissue, comprising preserving neural tissue in a preservation solution having a potassium ion concentration of more than 0 mM and less than 115 mM at a preservation temperature of 8°C to 30°C.

[2] The preservation method according to [1], wherein the preservation temperature is 12°C to 22°C.

CLAIMS

[Claim 1]

A preservation method for retinal tissue, comprising preserving retinal tissue in a preservation solution having a potassium ion concentration of more than 0 mM and less than 115 mM at a preservation temperature of 12°C to 22°C, and wherein the retinal tissue has a continuous epithelium structure, and has a cell layer comprising a photoreceptor precursor cell, and a cell layer comprising a neural retinal precursor cell.

[Claim 2]

The preservation method according to claim 1, wherein the preservation temperature is 17°C.

[Claim 3]

The preservation method according to claim 1 or 2, wherein the retinal tissue is derived from a human.

[Claim 4]

The preservation method according to any one of claims 1 to 3, wherein the retinal tissue is a tissue derived from pluripotent stem cells.

[Claim 5]

The preservation method according to any one of claims 1 to 4, wherein the retinal tissue is a tissue to be subjected to transplantation.

[Claim 6]

The preservation method according to any one of claims 1 to 5, wherein the photoreceptor precursor cell is Crx-positive cell, and the neural retinal precursor cell is Chx10-positive cell.

[Claim 7]

The preservation method according to any one of claims 1 to 6, wherein the potassium ion concentration is more than 0 mM and less than 60 mM.

[Claim 8]

The preservation method according to claim 7, wherein the potassium ion concentration is 0.1 mM to 10 mM.

[Claim 9]

The preservation method according to any one of claims 1 to 8, wherein the preservation is performed for a period of 48 hours or more.

[Claim 10]

The preservation method according to any one of claims 1 to 9, wherein the preservation is performed for a period of 14 days or less.

[Claim 11]

The preservation method according to any one of claims 1 to 9, for preservation for a period of 5 days or less.

[Claim 12]

The preservation method according to any one of claims 1 to 11, wherein the preservation solution is an aqueous solution containing a buffering agent and having a buffering action to control pH within the range of 6.0 to 8.6.

[Claim 13]

The preservation method according to any one of claims 1 to 12, wherein the preservation solution is the aqueous solution further containing a glycosaminoglycan.

[Claim 14]

The preservation method according to claim 13, wherein the concentration of the glycosaminoglycan is 0.1% (w/v) or more and 10% (w/v) or less.

[Claim 15]

The preservation method according to claim 13 or 14, wherein the glycosaminoglycan includes one or more glycosaminoglycans selected from the group consisting of chondroitin sulfate and hyaluronic acid.

[Claim 16]

A transport method for retinal tissue, comprising transporting retinal tissue in a preservation solution having a potassium ion concentration of more than 0 mM and less than 115 mM at a preservation temperature of 12°C to 22°C, wherein the retinal tissue has a continuous epithelium structure, and has a cell layer comprising a photoreceptor precursor cell, and a cell layer comprising a neural retinal precursor cell.

[Claim 17]

The transport method according to claim 16, wherein the preservation temperature is 17°C.

[Claim 18]

The transport method according to claim 16 or 17, wherein the retinal tissue is a tissue derived from human pluripotent stem cells.

[Claim 19]

The transport method according to any one of claims 16 to 18, wherein the retinal tissue is a tissue to be subjected to transplantation.

[Claim 20]

The transport method according to any one of claims 16 to 19, wherein the photoreceptor precursor cell is Crx-positive cell, and the neural retinal precursor cell is Chx10-positive cell.

[Claim 21]

The transport method according to any one of claims 16 to 20, wherein the potassium ion concentration is more than 0 mM and less than 60 mM.

[Claim 22]

The transport method according to claim 21, wherein the potassium ion concentration is more than 0 mM and less than 30 mM.