CLAIMS

[Claim 1]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein

the cell processing instrument comprises a mononuclear cell separating unit, disposed inside the embedding member, that separates mononuclear cells from blood,

the cell processing apparatus further comprises a separating agent storing unit, disposed outside the embedding member, that stores a separating agent for separation of mononuclear cells, and

the communicating solution-feeding channel comprises a separating agent solution-feeding channel that allows communication between the separating agent storing unit and the mononuclear cell separating unit.

[Claim 2]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein the cell processing instrument comprises:

a mononuclear cell separating unit, disposed inside the embedding member, that separates mononuclear cells from blood,

a factor introducing device, disposed inside the embedding member, that introduces an inducing factor into cells to prepare inducing factor-introduced cells, and

a preintroduction cell solution-feeding channel, disposed inside the embedding member, that allows communication between the mononuclear cell separating unit and the factor

introducing device.

[Claim 3]

The cell processing apparatus according to claim 2, which further comprises a driving unit disposed outside the embedding member, for feeding of a solution in the preintroduction cell solution-feeding channel.

[Claim 4]

The cell processing apparatus according to claim 3, wherein the driving unit is connected to an outer wall of the embedding member.

[Claim 5]

The cell processing apparatus according to claim 3 or 4, which is provided with a slave unit in the embedding member, to which driving force from the driving unit is transmitted, with the slave unit being connected to the preintroduction cell solution-feeding channel.

[Claim 6]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein the cell processing instrument comprises:

a mononuclear cell purifying filter, disposed inside the embedding member,

a factor introducing device, disposed inside the embedding member, that introduces an inducing factor into cells to prepare inducing factor-introduced cells, and

a preintroduction cell solution-feeding channel, disposed inside the embedding member, that allows communication between the mononuclear cell purifying filter and the factor introducing device.

[Claim 7]

The cell processing apparatus according to claim 6, which further comprises a driving unit disposed outside the embedding member, for feeding of a solution in the preintroduction cell solution-feeding channel.

[Claim 8]

The cell processing apparatus according to claim 7, wherein the driving unit is connected to an outer wall of the embedding member.

[Claim 9]

The cell processing apparatus according to claim 7 or 8, which is provided with a slave unit in the embedding member, to which driving force from the driving unit is transmitted, with the slave unit being connected to the preintroduction cell solution-feeding channel.

[Claim 10]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein

the cell processing instrument comprises an initializing culturing vessel, disposed inside the embedding member, that cultures inducing factor-introduced cells into which an inducing factor has been introduced,

the cell processing apparatus further comprises a blood cell culture medium storing unit, disposed outside the embedding member, that stores blood cell culture medium, and

the communicating solution-feeding channel comprises a culture medium solution-feeding channel that allows communication between the blood cell culture medium storing unit and the initializing culturing vessel.

[Claim 11]

The cell processing apparatus according to claim 10, wherein the blood cell culture medium

is continuously supplied to the initializing culturing vessel.

[Claim 12]

The cell processing apparatus according to claim 10, wherein the blood cell culture medium is supplied to the initializing culturing vessel at a prescribed timing.

[Claim 13]

The cell processing apparatus according to claim 10, which further comprises a cold storage unit, disposed outside the embedding member, that keeps the blood cell culture medium in cold storage.

[Claim 14]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein

the cell processing instrument comprises an initializing culturing vessel, disposed inside the embedding member, that cultures inducing factor-introduced cells into which an inducing factor has been introduced,

the cell processing apparatus further comprises a stem cell culture medium storing unit, disposed outside the embedding member, that stores stem cell culture medium, and

the communicating solution-feeding channel comprises a culture medium solution-feeding channel that allows communication between the stem cell culture medium storing unit and the initializing culturing vessel.

[Claim 15]

The cell processing apparatus according to claim 14, wherein the stem cell culture medium is continuously supplied to the initializing culturing vessel.

[Claim 16]

The cell processing apparatus according to claim 14, wherein the stem cell culture medium is supplied to the initializing culturing vessel at a prescribed timing.

[Claim 17]

The cell processing apparatus according to claim 14, which further comprises a cold storage unit, disposed outside the embedding member, that keeps the stem cell culture medium in cold storage.

[Claim 18]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein

the cell processing instrument comprises an initializing culturing vessel, disposed inside the embedding member, that cultures inducing factor-introduced cells into which an inducing factor has been introduced,

the cell processing apparatus further comprises a waste liquid storage section, disposed outside the embedding member, that stores waste liquid, and

the communicating solution-feeding channel comprises a waste liquid solution-feeding channel that allows communication between the initializing culturing vessel and the waste liquid storage section.

[Claim 19]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein

the cell processing instrument comprises an initializing culturing vessel, disposed inside the embedding member, that cultures inducing factor-introduced cells into which an inducing factor has been introduced, and

the initializing culturing vessel comprises:

a suspension culture vessel, which comprises:

a dialysis tube in which the inducing factor-introduced cells and culture medium are to be accommodated, and

a vessel in which the dialysis tube is to be placed, with the culture medium accommodable around the periphery of the dialysis tube.

[Claim 20]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein the cell processing instrument comprises:

a factor introducing device, disposed inside the embedding member, that introduces an inducing factor into cells to prepare inducing factor-introduced cells,

an initializing culturing vessel, disposed inside the embedding member, that cultures the inducing factor-introduced cells, and

an introduced cell solution-feeding channel, disposed inside the embedding member, that allows communication between the factor introducing device and the initializing culturing vessel.

[Claim 21]

The cell processing apparatus according to claim 20, which further comprises a driving unit disposed outside the embedding member, for feeding of a solution in the introduced cell solution-feeding channel.

[Claim 22]

The cell processing apparatus according to claim 21, wherein the driving unit is connected to an outer wall of the embedding member.

[Claim 23]

The cell processing apparatus according to claim 21 or 22, which is provided with a slave unit in the embedding member, to which driving force from the driving unit is transmitted, with the slave unit being connected to the introduced cell solution-feeding channel.

[Claim 24]

The cell processing apparatus according to claim 23, wherein the driving unit and the slave unit are connected by magnetic force.

[Claim 25]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein

the cell processing instrument comprises an amplifying culturing vessel, disposed inside the embedding member, that carries out amplifying culturing of a plurality of cell masses comprising established stem cells,

the cell processing apparatus further comprises a stem cell culture medium storing unit, disposed outside the embedding member, that stores stem cell culture medium, and

the communicating solution-feeding channel comprises a culture medium solution-feeding channel that allows communication between the stem cell culture medium storing unit and the amplifying culturing vessel.

[Claim 26]

The cell processing apparatus according to claim 25, wherein the stem cell culture medium is continuously supplied to the amplifying culturing vessel.

[Claim 27]

The cell processing apparatus according to claim 25, wherein the stem cell culture medium is supplied to the amplifying culturing vessel at a prescribed timing.

[Claim 28]

The cell processing apparatus according to claim 25, which further comprises a cold storage unit, disposed outside the embedding member, that keeps the stem cell culture medium in cold storage.

[Claim 29]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument,

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member, and

a driving unit, disposed outside the embedding member, for feeding of a solution in the communicating solution-feeding channel,

wherein a slave unit to which driving force from the driving unit is transmitted is provided in the embedding member, with the slave unit being connected to the communicating solution-feeding channel, and

the cells are cultured by the cell processing instrument,

wherein the cell processing instrument comprises an amplifying culturing vessel, disposed inside the embedding member, that carries out amplifying culturing of a plurality of cell masses comprising established stem cells,

wherein the cell processing apparatus further comprises a waste liquid storage section, disposed outside the embedding member, that stores waste liquid, and

wherein the communicating solution-feeding channel comprises a waste liquid solution-feeding channel that allows communication between the amplifying culturing vessel and the waste liquid storage section.

[Claim 30]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument,

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member, and

a driving unit, disposed outside the embedding member, for feeding of a solution in the communicating solution-feeding channel,

wherein a slave unit to which driving force from the driving unit is transmitted is provided in the embedding member, with the slave unit being connected to the communicating solution-feeding channel, and

the cells are cultured by the cell processing instrument,

wherein the cell processing instrument comprises an amplifying culturing vessel, disposed inside the embedding member, that carries out amplifying culturing of a plurality of cell masses comprising established stem cells, and

wherein the amplifying culturing vessel comprises:

a suspension culture vessel that comprises:

a dialysis tube in which cells and culture medium are to be inserted, and

a vessel in which the dialysis tube is to be placed, with the culture medium accommodable around the periphery of the dialysis tube.

[Claim 31]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein the cell processing instrument comprises:

an initializing culturing vessel, disposed inside the embedding member, that cultures cells,

an amplifying culturing vessel, disposed inside the embedding member, that carries out amplifying culturing of a plurality of cell masses comprising established stem cells, and

an introduced cell solution-feeding channel, disposed inside the embedding member, that

allows communication between the initializing culturing vessel and the amplifying culturing vessel.

[Claim 32]

The cell processing apparatus according to claim 31, which further comprises a driving unit disposed outside the embedding member, for feeding of a solution in the introduced cell solution-feeding channel.

[Claim 33]

The cell processing apparatus according to claim 32, wherein the driving unit is connected to an outer wall of the embedding member.

[Claim 34]

The cell processing apparatus according to claim 32 or 33, which is provided with a slave unit in the embedding member, to which driving force from the driving unit is transmitted, with the slave unit being connected to the introduced cell solution-feeding channel.

[Claim 35]

The cell processing apparatus according to claim 31 or 32, wherein the cell processing instrument further comprises a cell dissociater, disposed inside the embedding member and provided to the introduced cell solution-feeding channel, for dissociation of the cell masses.

[Claim 36]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein

the cell processing instrument comprises a solution exchanger that exchanges a solution surrounding cells,

the cell processing apparatus further comprises a cryopreservation liquid storing unit,

disposed outside the embedding member, that contains a cryopreservation liquid, and

the communicating solution-feeding channel comprises a cryopreservation liquid-feeding channel that allows communication between the cryopreservation liquid storing unit and the solution exchanger.

[Claim 37]

The cell processing apparatus according to claim 36, which further comprises a cryopreservation vessel, disposed outside the embedding member, for storage of the cryopreservation liquid in which cell masses have been dispersed,

wherein the communicating solution-feeding channel comprises a freezing cell solution-feeding channel, that allows communication between the solution exchanger and the cryopreservation vessel.

[Claim 38]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein the cell processing instrument comprises:

an amplifying culturing vessel, disposed inside the embedding member, that carries out amplifying culturing of a plurality of cell masses comprising established stem cells,

a solution exchanger that exchanges a solution surrounding cells, and

an introduced cell solution-feeding channel, disposed inside the embedding member, that allows communication between the amplifying culturing vessel and the solution exchanger.

[Claim 39]

The cell processing apparatus according to claim 38, which further comprises a driving unit disposed outside the embedding member, for feeding of a solution in the introduced cell solution-feeding channel.

[Claim 40]

The cell processing apparatus according to claim 39, wherein the driving unit is connected to an outer wall of the embedding member.

[Claim 41]

The cell processing apparatus according to claim 39 or 40, which is provided with a slave unit in the embedding member, to which driving force from the driving unit is transmitted, with the slave unit being connected to the introduced cell solution-feeding channel.

[Claim 42]

The cell processing apparatus according to any one of claims 38 to 41, wherein the cell processing instrument further comprises a cell dissociater, disposed inside the embedding member and provided to the introduced cell solution-feeding channel, for dissociation of the cell masses.

[Claim 43]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member,

wherein the cell processing instrument comprises a cell mass dissociater that dissociates cell masses.

[Claim 44]

The cell processing apparatus according to any one of claims 1, 2, 6, 10, 14, 18, 19, 20, 25, 31, 36, 38 and 43, wherein the embedding member is made of glass or a resin.

[Claim 45]

The cell processing apparatus according to any one of claims 1, 2, 6, 10, 14, 18, 19, 20, 25, 31, 36, 38 and 43, wherein the embedding member is made of a metal.

[Claim 46]

The cell processing apparatus according to any one of claims 1, 2, 6, 10, 14, 18, 19, 20, 25, 31, 36, 38 and 43, which further comprises a driving unit disposed outside the embedding member, for feeding of a solution in the communicating solution-feeding channel.

[Claim 47]

The cell processing apparatus according to claim 46, wherein the driving unit is connected to an outer wall of the embedding member.

[Claim 48]

The cell processing apparatus according to claim 46, which is provided with a slave unit in the embedding member, to which driving force from the driving unit is transmitted, with the slave unit being connected to the communicating solution-feeding channel.

[Claim 49]

The cell processing apparatus according to claim 1, which further comprises a blood storing unit, disposed outside the embedding member, that stores either or both blood and blood cells,

wherein the communicating solution-feeding channel comprises a blood solution-feeding channel that allows communication between the blood storing unit and the mononuclear cell separating unit.

[Claim 50]

A cell processing apparatus comprising:

a cell processing instrument that processes cells,

an embedding member that embeds the cell processing instrument, and

a communicating solution-feeding channel that allows communication between the outside of the embedding member and the cell processing instrument inside the embedding member, and

a tubing pump, disposed inside the embedding member, for feeding of a solution in the communicating solution-feeding channel,

wherein the cells are cultured by the cell processing instrument.