

# Small Molecules

For ES / iPS cells research

## Table of Contents

Featured Products .....	2
List of Small Molecules .....	6
Related Products .....	23

**level**  
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new boundaries

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IP Western

## CultureSure™ CEPT Cocktail (1,000×)

CEPT is a cocktail of small molecules developed at the National Institutes of Health (NIH). It contains four compounds, and CEPT is an acronym for them: Chroman 1, Emericasan, Polyamines, and Trans-ISRIB. Compared to existing methods, CEPT also improves cell viability in stem cell research, including embryoid body and organoid formation, single cell cloning, and genome editing using hPSCs.<sup>1, 2, 3)</sup>

### References

- 1) Chen, Y. *et al.* : *Nat. Methods*, **18** (5), 528 (2021).
- 2) Tristan, C.A. *et al.* : *Stem Cell Reports*, **16**, 3076 (2021).
- 3) Tristan, C.A. *et al.* : *Nat. Protoc.*, **18**, 58 (2022).

## Features

- Protects human ES/iPS cells from stresses including DNA damage, helping to **maintain cell structure and function**
- Filter-sterilized, **ready-to-use** cocktail solution
- One of the CultureSure series products that are **tested for endotoxins contamination and are mycoplasma negative**



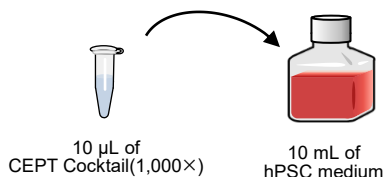
## Analytical Data

- Concentration (HPLC): Passed
- Appearance: Liquid
- Endotoxin: Less than 3 EU/mL
- Tested for sterility
- Tested for negative mycoplasma contamination

## How to Use

Add 1/1,000 volume of this product to the culture medium and mix thoroughly before use.

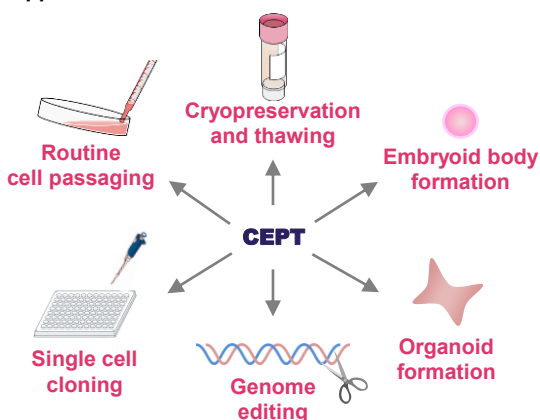
Note: To avoid repeated freezing and thawing, it is recommended to aliquot in small volumes and freeze.



## Samples and Applications

Samples : Human ES / iPS cells

Applications :

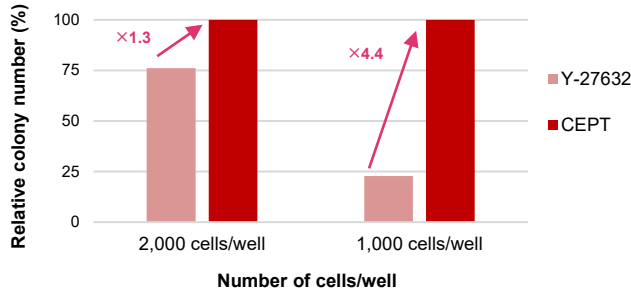


### Example of use: passaging of human iPS cells

1. Remove the medium from the culture dish (10 cm).
2. Add 5 to 10 mL of D-PBS(-) to the dish and rinse.
3. Remove D-PBS(-).
4. Add 2 to 5 mL of a cell dispersing agent.
5. Allow to stand in an incubator set to 5% CO<sub>2</sub>, 37 °C.
6. Add 10 mL of hPSC medium+CEPT
7. Disperse the hPSC colonies into single cells by pipetting.
8. Transfer the medium with dispersed cells into a tube.
9. Centrifuge the tube for 5 min at 200 x g, room temperature, and remove the supernatant.
10. Add 10 mL of hPSC medium+CEPT to the tube to suspend the cell pellet.
11. Count cells.
12. Seed an appropriate amount of hPSCs in a new culture dish previously containing hPSC medium+CEPT.
13. Culture in an incubator set to 5% CO<sub>2</sub>, 37 °C.
14. The following day, replace the medium with hPSC medium without CEPT.

## Performance data

### Colony Formation Test

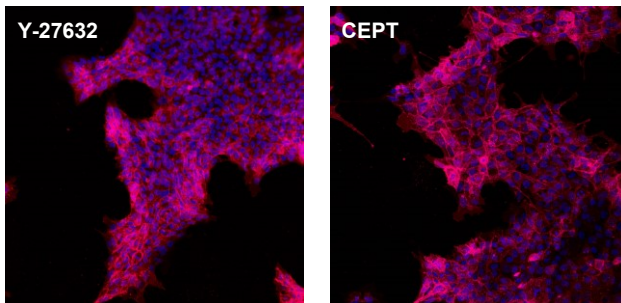


Cell strain	human iPS cell 201B7
Medium	StemSure® hPSC Medium Δ containing 35 ng/mL bFGF
Coating	Matrigel® hESC-Qualified Matrix
Duration of Culture	8 days
Additives	Y-27632 or CEPT was added at the time of seeding. Cells were cultured without the addition from the following day onward.

#### Result

When the number of cells seeded was small, more colonies were formed in the CEPT-supplemented cultures than in the Y-27632-supplemented cultures.

### Undifferentiated State Maintenance



**RED** : rBC2LCN-635 (human iPSC membrane stain)  
**BLUE** : DAPI (nuclear stain)

Note: BC2LCN is a recombinant lectin with high affinity for cell surface glycans of human ES cells and human iPS cells.

Cell strain	human iPS cell 201B7
Medium	StemSure® hPSC Medium Δ containing 35 ng/mL bFGF
Coating	Matrigel® hESC-Qualified Matrix
Number of seeded cells	5,000 cells/well (1well = 3.8 cm <sup>2</sup> )
Duration of Culture	7 days
Additives	Y-27632 or CEPT was added at the time of seeding. Cells were cultured without the addition from the following day onward.

#### Result

No difference in cell morphology was observed between the addition of CEPT and Y-27632. The undifferentiated state was also maintained.

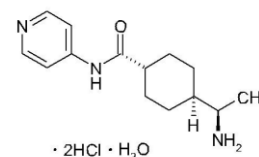
## Product Information

Wako Cat. No	Product Name	Storage Condition	Grade	Pkg. Size
033-26071	CultureSure™ CEPT Cocktail (1,000×)	Keep at -20°C	for Cell Culture	300 µL

## Related Products

Wako Cat. No	Product Name	Storage Condition	Grade	Pkg. Size
197-17571	StemSure® hPSC Medium Δ	Keep at -20°C	for Cell Culture	100 mL
193-17573				100 mL×4
064-05381	Fibroblast Growth Factor (basic)(FGF-basic / bFGF / FGF2), Human, recombinant, Animal-derived-free(154aa)(powder)	Keep at -20°C	for Cell biology	50 µg
068-05384				100 µg
060-05383				1 mg

# Y-27632



CAS No. 331752-47-7  
C<sub>14</sub>H<sub>21</sub>N<sub>3</sub>O · 2HCl · H<sub>2</sub>O=338.27

It is a selective and potent inhibitor of ROCK (Rho-associated coiled-coil forming kinase/Rho binding kinase). Y-27632 has a variety of activities including vascular smooth muscle contraction through the ROCK signaling ( $K_i = 140$  nmol/L p160ROCK). This product has been reported to suppress death of human ES cells and human iPS cells at the time of cell dispersion, and also improves viability of the cells after cryopreservation. We provide four grades of Y-27632 products. You can select according to the purpose of uses.

## CultureSure® Y-27632

Powder

This product has been tested for bacterial endotoxin and mycoplasma. It is suitable for use in cell culture applications.

## CultureSure® 10 mmol/L Y-27632 Solution, Animal-derived-free

Liquid

This product is Y-27632 prepared in water at 10 mmol/L. It has been filter-sterilized and can be added directly to the culture medium.

## Y-27632, MF

Powder

This product complies with ISO9001. The manufacturing process and analytical procedure are validated.

## Y-27632 (GMP compliant)

Powder

This product complies with ICH-Q7 (GMP for API) guidelines as a raw material for commercial production of regenerative medicine products. This is manufactured under properly controlled facilities.

## Y-27632 product grade

	Mycoplasma negative test	Endotoxin test	Animal-derived-free	Sterility	Viable bacteria	ICH-Q7
CultureSure® Y-27632	✓	✓	✓	—	—	—
CultureSure® 10mmol/L Y-27632 Solution, Animal-derived-free	✓	✓	✓	✓	—	—
Y-27632, MF	✓	✓	✓	—	✓	—
Y-27632 (GMP compliant)	✓	✓	✓	—	✓	✓

## Product Information

Wako Cat. No	Product Name	Storage Condition	Grade	Pkg. Size
030-24021	CultureSure® Y-27632	Keep at -20°C	for Cell Culture	1 mg
036-24023				5 mg
034-24024				25 mg
030-24026				100 mg
039-24591	CultureSure® 10mmol/L Y-27632 Solution, Animal-derived-free	Keep at -20°C	for Cell Culture	300 µL
035-24593				1 mL
259-00613	Y-27632, MF	Keep at -20°C	for Cell Culture	5 mg
257-00614				25 mg
252-00701	Y-27632 (GMP compliant)	Keep at -20°C	for Cell Culture	5 mg
258-00703				25 mg

# CultureSure® Small Molecules

This series of products has been quality-assured to be free from microorganism contamination, such as endotoxins and mycoplasma, and is safe for use in cell culture.

Note: Quality assurance tests vary depending on the product.

## CultureSure® A419259 Trihydrochloride

### Src Family Inhibitor

p.15

When used in conjunction with five other compounds, this product can induce differentiation of human iPS cells into cardiomyocytes without the use of proteins such as cytokines and albumin.

#### ■ Powder Product

- Appearance : White ~ pale yellowish red, crystalline powder ~ powder
- Assay (HPLC) : min.98.0%
- Soluble in Water, Ethanol, DMSO.
- Mycoplasma test : to pass test
- Bacterial endotoxins : less than 0.1 EU/mg

## CultureSure® A-83-01

### ALK4, ALK5, ALK7 Inhibitor

p. 6, 9, 13, 20

A-83-01 facilitates the uniform growth of rat iPS cells without differentiation for long periods of time. Other effects include reprogramming of rat and mouse adult stem cells to hepatic progenitor cells.

#### ■ Powder Product

- Appearance : White ~ yellow, crystalline powder ~ powder or mass
- Assay (HPLC) : min.98.0%
- Soluble in DMSO. Practically insoluble in Water and Ethanol.
- Mycoplasma test : to pass test
- Bacterial endotoxins : less than 0.01 EU/mg

## CultureSure® CHIR99021

### GSK-3β Inhibitor

p. 6, 9, 20

When ES cells are cultured in a medium containing CHIR99021 and PD0325901, differentiation can be inhibited with high efficiency. CHIR99021 is also used for production of iPS cells from mouse somatic cells.

#### ■ Powder Product

- Appearance : White ~ pale brown, crystalline powder ~ powder
- Assay (HPLC) : min.97.0%
- Soluble in DMSO and Methanol.
- Mycoplasma test : to pass test
- Bacterial endotoxins : less than 0.25 EU/mg

#### ■ Liquid Product

- Composition: 10 mmol/L CHIR99021 in DMSO
- Mycoplasma test : to pass test
- Bacterial endotoxins : less than 2 EU/mL (data for Lot # LKF0004)
- Sterility test : to pass test

## CultureSure® SB431542

### ALK4, ALK5, ALK7 Inhibitor

p. 7, 11, 21

When used in conjunction with PD0325901, SB431542 improves reprogramming efficiency more than 200-fold and accelerates reprogramming. It also promotes proliferation, differentiation, and sheet formation of ES cell-derived endothelial cells and efficiently converts undifferentiated human iPS cells into an EB-like state of differentiation.

#### ■ Powder Product

- Appearance : White ~ slightly yellowish brown, crystalline powder ~ powder
- Assay (HPLC) : min.98.0%
- Soluble in DMSO, Ethanol.
- Mycoplasma test : to pass test
- Bacterial endotoxins : less than 0.05 EU/mg

#### ■ Liquid Product

- Composition: 5 mmol/L SB431542 in DMSO
- Mycoplasma test : to pass test
- Bacterial endotoxins : under investigation (less than 2 EU/mL, data for Lot # WTE076)
- Sterility test : to pass test

## CultureSure® IWP-2

### Wnt Inhibitor

p. 10, 16, 21

IWP-2 inhibits Wnt palmitoylation by inactivating Porcupine. It also promotes differentiation of human iPS cells into cardiomyocytes and inhibits self-renewal of mouse ES cells (R1 cells).

#### ■ Powder Product

- Appearance : White ~ pale brown, crystals ~ powder
- Assay (HPLC) : min.98.0%
- Soluble in DMSO.  
Practically insoluble in Water, Ethanol.
- Mycoplasma test : to pass test

## CultureSure® IWR-1-endo

### Wnt Inhibitor

p.21

IWR-1 stabilizes a complex (consisting of Axin2, Apc, Ck1, and Gsk3β) that degrades β-catenin, thereby promoting β-catenin degradation. It has been used in self-assembly during neocortical organoid formation from human ES cells.

#### ■ Powder Product

- Appearance : White ~ pale yellow, crystalline powder ~ powder
- Assay (HPLC) : min.98.0%
- Soluble in DMSO.
- Mycoplasma test : to pass test
- Bacterial endotoxins : less than 0.25 EU/mg

## CultureSure® KY03- I

### Wnt Inhibitor

p.16

KY02111 is a compound that induces differentiation of human ES/iPS cells into cardiomyocytes. KY03-I induces differentiation into cardiomyocytes more efficiently than KY02111 at a lower concentration without the use of serum, proteins, or cytokines.

#### ■ Powder Product

- Appearance : White ~ pale gray, crystalline powder ~ powder
- Assay (HPLC) : min.98.0%
- Soluble in DMSO, Ethanol.  
Practically insoluble in Water.
- Mycoplasma test : to pass test
- Bacterial endotoxins : less than 10 EU/g

## CultureSure® CKI-7 Dihydrochloride

### CK1 Inhibitor

p.17

When used in conjunction with SB431542 and Y-27632, CKI-7 induces differentiation of human ES/iPS cells into retinal progenitor cells under serum- and feeder-free conditions.

#### ■ Liquid Product

- Composition: 3 mmol/L CKI-7 dihydrochloride in water
- Mycoplasma test : to pass test
- Bacterial endotoxins : under investigation (min.1 EU/mL, data for Lot # SAK6676)
- Sterility test : to pass test

■ Reference Osakada, M. *et al.*: *J. Cell Sci.*, **122**, 3169 (2009).

# List of Small Molecules for Regenerative Medicine Research

## For Efficient Reprogramming

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>CultureSure® A-83-01 (TGF-βR I Kinase Inhibitor IV)</b>	for Cell Culture	039-24111	2 mg
		035-24113	10 mg
Selective inhibitor of ALK4, ALK5, ALK7. It has been reported that when used together with Y-27632 and CHIR99021, it reprograms rat and mouse mature hepatocytes into hepatic progenitor cells that can be stably cultured <i>in vitro</i> . Tested for endotoxin contamination, mycoplasma negative status, and cytotoxicity. [Katsuda, T., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>20</b> , 41 (2017).]		909910-43-6	Keep at -20°C
<b>ALK5 Inhibitor (TGF-βR I Kinase Inhibitor II)</b>	for Cell Biology	018-23023	10 mg
TGF-βR I kinase/ALK5 inhibitor. It can be used as a substitute for Sox2 or c-Myc when generating mouse iPS cells. [Maherali, N., <i>et al.</i> : <i>Curr. Biol.</i> , <b>19</b> , 1718 (2009).]		446859-33-2	Keep at -20°C
<b>Butyric Acid</b>	Wako Special Grade	029-05393	25 mL
		023-05396	500 mL
It can increase the efficiency of mouse iPS cell generation. [Liang, G., <i>et al.</i> : <i>J. Biol. Chem.</i> , <b>285</b> , 25516 (2010).]		107-92-6	Keep at RT
<b>CultureSure® CHIR99021</b>	for Cell Culture	038-23101	1 mg
		034-23103	5 mg
		032-23104	100 mg
Highly selective GSK-3β inhibitor. No cross-reactivity to CDKs. Used to generate iPS cells from mouse somatic cells. Tested for endotoxin contamination, mycoplasma negative status, and cytotoxicity. [Hou, P., <i>et al.</i> : <i>Science</i> , <b>341</b> , 651 (2013).]		252917-06-9	Keep at -20°C
<b>CHIR99021, MF</b>	for Cell Culture	032-25441	5 mg
		038-25443	25 mg
This product complies with ISO9001. The manufacturing process and analytical procedure are validated. Tested for endotoxin contamination, mycoplasma negative status, and viable bacteria counts.		252917-06-9	Keep at -20°C
<b>CultureSure® 10 mmol/L CHIR99021 DMSO Solution, Animal-derived-free</b>	for Cell Culture	038-24681	300 μL
CHIR99021 dissolved in DMSO at 10 mmol/L. No animal-derived components used as raw materials or in the manufacturing process. Filter-sterilized.		252917-06-9	Keep at -20°C
<b>Cyclic Pifithrin-α Hydrobromide</b>	for Cell Biology	036-24001	5 mg
Reversible inhibitor of p53-mediated apoptosis and p53-dependent gene transcription. Decreased p53 activity has been shown to improve the reprogramming efficiency of human and mouse somatic cells.		511296-88-1	Keep at -20°C
<b>3-Deazaneplanocin A Hydrochloride (DZNep)</b>	for Cell Biology	049-33701	1 mg
Inhibitor of histone methyltransferase EZH2. It has been reported that using valproic acid, CHIR99021, ALK-5 Inhibitor, Tranylcypromine, Forskolin, DZNep, and TTNPB together can efficiently generate iPS cells with only the compound. [Hou, P., <i>et al.</i> : <i>Science</i> , <b>341</b> , 651 (2013).]		120964-45-6	Keep at -20°C

For Efficient Reprogramming

For Undifferentiated State Maintenance

For Differentiation Induction

For Organoid cultures



Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN <sup>®</sup>	Storage Condition
<b>Kenpaullone</b>	for Cell Biology	116-00833	5 mg
GSK-3 $\beta$ , inhibitor against CDKs. It can be used as an alternative to <i>Klf4</i> , one of Yamanaka factors, when producing iPS cells. In addition, when added at the time of Yamanaka factor's introduction, reprogramming efficiency is improved. [Lyssiotis, CA., <i>et al.</i> : <i>Proc. Natl. Acad. Sci. USA</i> , <b>106</b> , 8912 (2009).]		142273-20-9	Keep at -20°C
<b>PD0325901</b>	for Cell Biology	162-25291	5 mg
		168-25293	25 mg
MAPK inhibitor. It has been reported to improve reprogramming efficiency more than 200-fold and speed up reprogramming when used with SB431542 and thiazovivin. [Ying, QL., <i>et al.</i> : <i>Nature</i> , <b>453</b> , 519 (2008).]		391210-10-9	Keep at -20°C
<b>CultureSure<sup>®</sup> SB431542</b>	for Cell Culture	031-24291	5 mg
		037-24293	25 mg
ALK4, ALK5, and ALK7 inhibitor. When used together with this compound, PD0325901, and thiazovivin, reprogramming efficiency improves more than 200 times and reprogramming speeds up. Tested for endotoxin contamination, mycoplasma negative status, and cytotoxicity. [Lin, T., <i>et al.</i> : <i>Nat. Methods</i> , <b>6</b> , 805 (2009).]		301836-41-9	Keep at -20°C
<b>CultureSure<sup>®</sup> 5mmol/L SB431542 DMSO Solution, Animal-derived-free</b>	for Cell Culture	033-24631	1 mL
SB431542 dissolved in DMSO at 5 mmol/L. No animal-derived components used as raw materials or in the manufacturing process. Filter-sterilized.		301836-41-9	Keep at -20°C
<b>SB590885</b>	for Cell Culture	194-18681	5 mg
Selective B-Raf inhibitor. Human iPS cells cultured on-feeder in medium containing PD0325901, IM-12, SB590885, Y-27632, WH-4-023, hLIF, and Activin A induced and maintained naive human ES cells resembled the basal state of mouse ES cells. This product is passed endotoxin test. [Theunissen, T.W., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>15</b> , 471 (2014).]		405554-55-4	Keep at -20°C
<b>Valproic Acid</b>	for Biochemistry	227-01071	5 g
		225-01072	25 g
Histone deacetylase inhibitor. By using this compound, iPS cells can be induced from fibroblasts by transfection of <i>Oct4</i> and <i>Sox2</i> only. [Huangfu, D., <i>et al.</i> : <i>Nature Biotechnol.</i> , <b>26</b> , 1269 (2008).]		99-66-1	Keep at RT
<b>WH-4-023</b>	for Cell Biology	234-02741	5 mg
Inhibitor of Lck and Src kinases. Naive human pluripotent cells were derived and maintained in the medium containing with this compound, PD0325901, IM-12, SB590885, Y-27632, and Activin A. [Theunissen, TW., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>15</b> , 471 (2014).]		837422-57-8	Keep at -20°C

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN <sup>®</sup>	Storage Condition
<b>CultureSure<sup>®</sup> Y-27632</b>	for Cell Culture	030-24021	1 mg
		036-24023	5 mg
		034-24024	25 mg
		030-24026	100 mg
ROCK inhibitor. Enhances survival and cloning efficiency of human ES/iPS cells after cryopreservation. Placental stem cells can be established from trophoblast stem cells by using this product in conjunction with EGF, CHIR99021, A-83-01, and SB431542. Tested for endotoxins, mycoplasma negativity, and cytotoxicity. [Uehata, M., <i>et al.</i> : <i>Nature</i> , <b>389</b> , 990 (1997).] [Nishimaru, K., <i>et al.</i> : <i>J. Pharmacol. Sci.</i> , <b>92</b> , 424 (2003).] [Sakamoto, K., <i>et al.</i> : <i>J. Pharmacol. Sci.</i> , <b>92</b> , 56 (2003).] [Watanabe, K., <i>et al.</i> : <i>Nat. Biotechnol.</i> , <b>25</b> , 681 (2007).] [Martin-Ibanez, R., <i>et al.</i> : <i>Hum. Reprod.</i> , <b>23</b> , 2744 (2008).] [Claassen, DA., <i>et al.</i> : <i>Mol. Reprod. Dev.</i> , <b>76</b> , 722 (2009).] [Kawamata, M., <i>et al.</i> : <i>Proc. Natl. Acad. Sci. USA</i> , <b>107</b> , 14223 (2010).] [Ito, H., <i>et al.</i> : <i>Liver Int.</i> , <b>32</b> , 592 (2012).] [Katsuda, T., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>20</b> , 41 (2017).] [Ayabe, H., <i>et al.</i> : <i>Stem Cell Reports.</i> , <b>11</b> , 306 (2018).] [Ogawa, K., <i>et al.</i> : <i>Sci. Rep.</i> , <b>8</b> , 3615 (2018).] [Okae, H., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>22</b> , 50 (2018).]		331752-47-7	Keep at -20°C
<b>CultureSure<sup>®</sup> 10mmol/L Y-27632 Solution, Animal-derived-free</b>	for Cell Culture	039-24591	300 µL
		035-24593	1 mL
Y-27632 solution adjusted to 10 mmol/L with water. No animal-derived products are used in the raw materials or manufacturing process. Filter sterilized.		331752-47-7	Keep at -20°C
<b>Y-27632, MF</b>	for Cell Culture	259-00613	5 mg
		257-00614	25 mg
This product complies with ISO9001. The manufacturing process and analytical procedure are validated. Tested for endotoxin contamination, mycoplasma negative status, and viable bacteria counts.		331752-47-7	Keep at -20°C
<b>Y-27632</b>	for Cell Culture	252-00701	5 mg
		258-00703	25 mg
This product complies with ICH-Q7 (GMP for API) guidelines as a raw material for commercial production of regenerative medicine products. This is manufactured under properly controlled facilities.		331752-47-7	Keep at -20°C



## For Undifferentiated State Maintenance

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>CultureSure® A-83-01</b> <b>[TGF-βR I Kinase Inhibitor IV]</b>	for Cell Culture	039-24111	2 mg
		035-24113	10 mg
Selective inhibitor of ALK4, ALK5, and ALK7. Facilitates the uniform growth of rat and canine iPS cells without differentiation for long periods of time. Tested for endotoxin contamination, mycoplasma negative status, and cytotoxicity. [Li, W., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>4</b> , 16 (2009).]		909910-43-6	Keep at -20°C
<b>Adrenocorticotrophic Hormone (1-24) (Human)</b> <b>[ACTH]</b>	for Cell Biology	014-26761	1 mg
Inhibits mouse ES cell differentiation in serum-free medium and facilitates ES cell proliferation. [Ogawa, K., <i>et al.</i> : <i>Genes Cells</i> , <b>9</b> , 471 (2004).]		16960-16-0	Keep at -20°C
<b>(-) -Blebbistatin</b>	for Cell Biology	021-17041	1 mg
		027-17043	5 mg
Specific inhibitor of myosin II. Inhibits the blebbing that occurs when human ES/iPS cell colonies are dissociated into single cells and prevents apoptosis. [Ohgushi, M., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>7</b> , 225 (2010).]		856925-71-8	Keep at -20°C
<b>6-Bromoindirubin-3'-oxime</b> <b>[BIO][GSK-3 Inhibitor IX]</b>	for Cell Biology	029-16241	1 mg
Inhibitor of GSK-3 and CDKs. Maintains the undifferentiated state of human and mouse ES cells in feeder cell-free medium. Also promotes proliferation of rat cardiomyocytes. [Sato, N., <i>et al.</i> : <i>Nat. Med.</i> , <b>10</b> , 55 (2004).] [Tseng, AS., <i>et al.</i> : <i>Chem. Biol.</i> , <b>13</b> , 957 (2006).]		667463-62-9	Keep at 2-10°C
<b>CultureSure® CHIR99021</b>	for Cell Culture	038-23101	1 mg
		034-23103	5 mg
		032-23104	100 mg
Highly selective GSK-3β inhibitor. Shows no cross-reactivity against CDKs. Inhibits differentiation and facilitates self-renewal of ES cells with high efficiency when cultured in medium containing this product and PD0325901. [Ying, QL., <i>et al.</i> : <i>Nature</i> , <b>453</b> , 519 (2008).]		252917-06-9	Keep at -20°C
<b>CHIR99021, MF</b>	for Cell Culture	032-25441	5 mg
		038-25443	25 mg
This product complies with ISO9001. The manufacturing process and analytical procedure are validated. Tested for endotoxin contamination, mycoplasma negative status, and viable bacteria counts.		252917-06-9	Keep at -20°C
<b>CultureSure® 10mmol/L CHIR99021 DMSO Solution, Animal-derived-free</b>	for Cell Culture	038-24681	300 μL
CHIR99021 dissolved in DMSO at 10 mmol/L. No animal-derived components used as raw materials or in the manufacturing process. Filter-sterilized.		252917-06-9	Keep at -20°C
<b>DNA Methyltransferase Inhibitor [RG108]</b>	for Genetic Research	041-30101	10 mg
DNA methyltransferase inhibitor. Has low cytotoxicity and suppresses cell proliferation. [Tsumura, A., <i>et al.</i> : <i>Genes Cells</i> , <b>11</b> , 805 (2006).]		48208-26-0	Keep at -20°C
<b>GF 109203X</b>	for Biochemistry	079-03811	1 mg
Protein kinase C (PKC) inhibitor. When used in conjunction with U0126, stably maintains the undifferentiated state of human ES/iPS cells. [Kinehara, M., <i>et al.</i> : <i>PLOS ONE</i> , <b>8</b> , e54122 (2013).]		133052-90-1	Keep at 2-10°C (RT)

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>Go6983</b>	for Cell Biology	078-06441	1 mg
		074-06443	5 mg
Protein kinase C (PKC) inhibitor. When added to the naive human pluripotent stem cell medium (NHSM) with Y-27632, it induces naive iPS/ES cells, and maintains and improves cell viability. [Gafni, O., <i>et al.</i> : <i>Nature</i> , <b>520</b> , 710 (2013).]		133053-19-7	Keep at -20°C
<b>H1152 Dihydrochloride</b>	for Cell Biology	088-09281	1 mg
ROCK inhibitor. Inhibits apoptosis and improves survival and cloning efficiency of dissociated human ES cells. Has stronger inhibitory activity than Y-27632.		871543-07-6	Keep at -20°C
<b>CultureSure® IWP-2</b>	for Cell Culture	034-24301	5 mg
		030-24303	25 mg
Inhibits Wnt palmitoylation by inactivating Porcupine (Porcn). Inhibits self-renewal of mouse ES cells (R1 cells). Tested for mycoplasma negativity and cytotoxicity. [Berge, D., <i>et al.</i> : <i>Nat. Cell Biol.</i> , <b>13</b> , 1070 (2011).] [Minami, I., <i>et al.</i> : <i>Cell Rep.</i> , <b>2</b> , 1448 (2012).]		686770-61-6	Keep at 2-10°C
<b>(±)-α-Lipoic acid</b>	for Cell Culture	123-06461	1 g
		129-06463	5 g
		127-06464	50 g
Coenzyme involved in acyl group transfer necessary for the reactions in the citric acid cycle. Possesses antioxidant properties. Alternative names are DL-thioctic acid and (+/-)-1,2-dithiolane-3-valeric acid. Promotes the production of human ES cell-derived homogenic endothelial cells and hematopoietic stem/progenitor cells. Also maintains functional cord blood hematopoietic stem cells ex vivo. [Dong, Y., <i>et al.</i> : <i>J. Leukoc. Biol.</i> , <b>108</b> , 1711 (2020).]		1077-28-7	Keep at 2-10°C
<b>PD0325901</b>	for Cell Biology	162-25291	5 mg
		168-25293	25 mg
MAPK inhibitor. Efficiently maintains ES cell self-renewal potential when used in conjunction with CHIR99021. [Ying, QL., <i>et al.</i> : <i>Nature</i> , <b>453</b> , 519 (2008).]		391210-10-9	Keep at -20°C
<b>PD173074</b>	for Cell Biology	160-26831	5 mg
FGFR inhibitor. Promotes self-renewal of mouse ES cells. [Ying, QL., <i>et al.</i> : <i>Nature</i> , <b>453</b> , 519 (2008).]		219580-11-7	Keep at -20°C
<b>PD184352</b>	for Cell Biology	165-26761	5 mg
MAPK inhibitor. When used in conjunction with CHIR99021 and SU5402, facilitates culture of ES cells while maintaining their undifferentiated state. [Ying, QL., <i>et al.</i> : <i>Nature</i> , <b>453</b> , 519 (2008).]		212631-79-3	Keep at -20°C
<b>PD98059</b>	for Biochemistry	169-19211	5 mg
MAPK inhibitor. Promotes self-renewal of ES cells. [Burdon, T., <i>et al.</i> : <i>Dev. Biol.</i> , <b>210</b> , 30 (1999).] [Hamazaki, T., <i>et al.</i> : <i>Mol. Cell. Biol.</i> , <b>26</b> , 7539 (2006).]		167869-21-8	Keep at -20°C
<b>Pioglitazone hydrochloride</b>	for Pharmacology Research	162-24831	100 mg
		168-24833	500 mg
PPARγ agonist. When added to the culture medium in conjunction with Y-27632, it improves the cloning efficiency of human PS cells. [Kajabadi, NS., <i>et al.</i> : <i>J. Biol. Chem.</i> , <b>290</b> , 26303 (2015).]		112529-15-4	Keep at RT
<b>Poly Vinyl Alcohol</b>	Guaranteed Reagent	165-17915	500 g
When stem cells are cultured <i>ex vivo</i> in a medium supplemented with serum albumin, an innate immune response is induced after transplantation. To avoid it, this compound is used as an alternative to albumin. [Cyranoski, D. : <i>Nature</i> , <b>570</b> , 17 (2019).] [Wilkinson, AC., <i>et al.</i> : <i>Nature</i> , <b>571</b> , 117 (2019).]		9002-89-5	Keep at RT

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>Prostaglandin E2</b>	for Biochemistry	165-10813	1 mg
		163-10814	5 mg
		169-10811	10 mg
Primary product of the arachidonic acid/cyclooxygenase pathway. Facilitates the proliferation of prostate cell lines and human colon epithelium. [Karthaus, WR., et al. : <i>Cell</i> , <b>159</b> , 163 (2014).]		363-24-6	Keep at -20°C
<b>SB202190</b>	for Cell Biology	193-13531	1 mg
p38MAPK inhibitor. Inhibits reprogramming of human fibroblasts and stabilizes naive human iPS cells. [Gafni, O., et al. : <i>Nature</i> , <b>520</b> , 710 (2013).] [Neganova, I., et al. : <i>Sci. Rep.</i> , <b>7</b> , 41693 (2017).]		152121-30-7	Keep at -20°C
<b>SB203580</b>	for Cell Biology	199-16551	1 mg
		195-16553	5 mg
MAPK inhibitor. Used for isolation and maintenance of ES cells. Cells capable of differentiating into placenta can be produced and maintained by culturing blastomeres isolated from the 8-cell stage of the mouse embryo in medium containing LIF, CHIR99021, PD0325901, JNK inhibitor VIII, SB203580, A419259, and XAV939. [Qi, X., et al. : <i>Proc. Natl. Acad. Sci. USA</i> , <b>101</b> , 6027 (2004).] [Yang, J., et al. : <i>Nature</i> , <b>550</b> , 393 (2017).]		152121-47-6	Keep at -20°C
<b>SB203580 Hydrochloride</b>	for Cell Biology	198-16761	1 mg
Water-soluble form of SB203580.		869185-85-3	Keep at -20°C
<b>CultureSure® SB431542</b>	for Cell Culture	031-24291	5 mg
		037-24293	25 mg
		035-24294	500 mg
ALK4, ALK5, and ALK7 inhibitor. Promotes proliferation, differentiation, and cell sheet formation of ES cell-derived endothelial cells. Tested for endotoxins, mycoplasma negativity, and cytotoxicity. [Ogawa, K., et al. : <i>J. Cell. Sci.</i> , <b>120</b> , 55 (2007).]		301836-41-9	Keep at -20°C
<b>CultureSure® 5mmol/L SB431542 DMSO Solution, Animal-derived-free</b>	for Cell Culture	033-24631	1 mL
SB431542 dissolved in DMSO at 5 mmol/L. No animal-derived components used as raw materials or in the manufacturing process. Filter-sterilized.		301836-41-9	Keep at -20°C
<b>Sildenafil citrate</b>	for Biochemistry	198-18363	1 g
Phosphodiesterase 5 (PDE5) inhibitor. When used in conjunction with AMD 3100, promotes hematopoietic stem cell mobilization. [Smith-Berdan, S., et al. : <i>Stem Cell Reports.</i> , <b>13B</b> , 787 (2019).]		171599-83-0	Keep at RT
<b>Sodium Butyrate</b>	-	193-01522	25 g
		197-01525	500 g
Histone deacetylase inhibitor. Promotes ES cell self-renewal. [Ware, CB., et al. : <i>Cell Stem Cell</i> , <b>4</b> , 359 (2009).]		156-54-7	Keep at RT
<b>SP 600125</b>	for Cell Biology	197-16591	5 mg
		193-16593	25 mg
Selective JNK inhibitor. Maintains stem cells in the naive pluripotent state. [Gafni, O., et al. : <i>Nature</i> , <b>520</b> , 710 (2013).]		129-56-6	Keep at -20°C
<b>SU5402</b>	for Cell Biology	197-16731	1 mg
		193-16733	5 mg
		191-16734	25 mg
FGFR1 inhibitor. When used in conjunction with CHIR99021 and PD184352, it facilitates culture of ES cells while maintaining the undifferentiated state. [Ying, QL., et al. : <i>Nature</i> , <b>453</b> , 519 (2008).]		215543-92-3	Keep at -20°C

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>Troglitazone</b>	for Cell Biology	209-19481	5 mg
		205-19483	50 mg
PPAR $\gamma$ agonist. Induces differentiation of human mesenchymal stem cells into adipocytes and inhibits differentiation into osteoblasts. Also inhibits proliferation of hematopoietic cell lines. [Fujimura, S., <i>et al.</i> : <i>Int. J. Oncol.</i> , <b>13</b> , 1263 (1998).] [Benvenuti, S., <i>et al.</i> : <i>J. Endocrinol. Invest.</i> , <b>30</b> , RC26 (2007).]		97322-87-7	Keep at -20°C
<b>U0126</b>	for Biochemistry	211-01051	5 mg
MEK1/2 inhibitor. When used in conjunction with GF 109203X, stably maintains the undifferentiated state of human ES/iPS cells. [Kinehara, M., <i>et al.</i> : <i>PLOS ONE</i> , <b>8</b> , e54122 (2013).]		109511-58-2	Keep at -20°C
<b>WH-4-023</b>	for Cell Biology	234-02741	5 mg
Inhibitor of Lck and Src kinases. WH-4-023 supports self-renewal of naive human ES cells when used in conjunction with PD0325901, IM-12, SB590855, Y-27632, hLIF, and Activin A in the presence of feeder cells. [Theunissen, T.W., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>15</b> , 471 (2014).]		837422-57-8	Keep at -20°C
<b>XAV939</b>	for Cell Biology	247-00951	5 mg
		243-00953	25 mg
Inhibitor of the Wnt/ $\beta$ -catenin pathway. Wnt signaling is important for self-renewal of various stem cells. Cells capable of differentiating into placenta can be produced and maintained by culturing blastomeres isolated from the 8-cell stage of the mouse embryo in medium containing LIF, CHIR99021, PD0325901, JNK inhibitor VIII, SB203580, A419259, and XAV939. [Yang, J., <i>et al.</i> : <i>Nature</i> , <b>550</b> , 393 (2017).]		284028-89-3	Keep at RT
<b>CultureSure® Y-27632</b>	for Cell Culture	030-24021	1 mg
		036-24023	5 mg
		034-24024	25 mg
		030-24026	100 mg
ROCK inhibitor. Enhances survival and cloning efficiency of human ES/iPS cells after cryopreservation. Placental stem cells can be established from trophoblast stem cells by using this product in conjunction with EGF, CHIR99021, A-83-01, and SB431542. Tested for endotoxins, mycoplasma negativity, and cytotoxicity. [Uehata, M., <i>et al.</i> : <i>Nature</i> , <b>389</b> , 990 (1997).] [Nishimaru, K., <i>et al.</i> : <i>J. Pharmacol. Sci.</i> , <b>92</b> , 424 (2003).] [Sakamoto, K., <i>et al.</i> : <i>J. Pharmacol. Sci.</i> , <b>92</b> , 56 (2003).] [Watanabe, K., <i>et al.</i> : <i>Nat. Biotechnol.</i> , <b>25</b> , 681 (2007).] [Martin-Ibanez, R., <i>et al.</i> : <i>Hum. Reprod.</i> , <b>23</b> , 2744 (2008).] [Claassen, DA., <i>et al.</i> : <i>Mol. Reprod. Dev.</i> , <b>76</b> , 722 (2009).] [Kawamata, M., <i>et al.</i> : <i>Proc. Natl. Acad. Sci. USA</i> , <b>107</b> , 14223 (2010).] [Ito, H., <i>et al.</i> : <i>Liver Int.</i> , <b>32</b> , 592 (2012).] [Katsuda, T., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>20</b> , 41 (2017).] [Ayabe, H., <i>et al.</i> : <i>Stem Cell Reports.</i> , <b>11</b> , 306 (2018).] [Ogawa, K., <i>et al.</i> : <i>Sci. Rep.</i> , <b>8</b> , 3615 (2018).] [Okae, H., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>22</b> , 50 (2018).]		331752-47-7	Keep at -20°C
<b>CultureSure® 10mmol/L Y-27632 Solution, Animal-derived-free</b>	for Cell Culture	039-24591	300 $\mu$ L
		035-24593	1 mL
Y-27632 dissolved in water at 10 mmol/L. No animal-derived components used as raw materials or in the manufacturing process. Filter-sterilized.		331752-47-7	Keep at -20°C
<b>Y-27632, MF</b>	for Cell Culture	259-00613	5 mg
		257-00614	25 mg
This product complies with ISO9001. The manufacturing process and analytical procedure are validated. Tested for endotoxin contamination, mycoplasma negative status, and viable bacteria counts.		331752-47-7	Keep at -20°C
<b>Y-27632</b>	for Cell Culture	252-00701	5 mg
		258-00703	25 mg
This product complies with ICH-Q7 (GMP for API) guidelines as a raw material for commercial production of regenerative medicine products. This is manufactured under properly controlled facilities.		331752-47-7	Keep at -20°C

# For Differentiation Induction

## Neurons

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN <sup>®</sup>	Storage Condition
<b>CultureSure<sup>®</sup> A-83-01</b> <b>[TGF-βR I Kinase Inhibitor IV]</b>	for Cell Culture	039-24111	2 mg
		035-24113	10 mg
Selective inhibitor of ALK4, ALK5, and ALK7. Promotes differentiation of human iPS cells into neural cells. Tested for endotoxin contamination, mycoplasma negative status, and cytotoxicity. [Chen, Y., <i>et al.</i> : <i>Methods. Mol. Biol.</i> , <b>1919</b> , 59 (2019).]		909910-43-6	Keep at -20°C
<b>AICAR</b>	for Cell Biology	015-22531	100 mg
		011-22533	1 g
AMPK activator. Inhibits differentiation into adipocytes. Also induces differentiation of neural stem cells into astroglia. [Giri, S., <i>et al.</i> : <i>Nutr. Metab. (Lond)</i> , <b>3</b> , 31 (2006).] [Zang, Y., <i>et al.</i> : <i>J. Biol. Chem.</i> , <b>283</b> , 6201 (2008).]		2627-69-2	Keep at -20°C
<b>all-trans-Retinoic Acid</b>	for Biochemistry	186-01114	50 mg
		182-01116	100 mg
		182-01111	250 mg
		188-01113	1 g
Induces differentiation into neurons.		302-79-4	Keep at -20°C
<b>DAPT</b> <b>[γ-Secretase Inhibitor IX]</b>	for Cell Biology	043-33581	5 mg
γ-secretase inhibitor. Inhibits Notch signaling and induces neural differentiation from ES cell embryoid bodies. [Crawford, TQ., <i>et al.</i> : <i>Dev. Dyn.</i> , <b>236</b> , 886 (2007).] [Nelson, BR., <i>et al.</i> : <i>Dev. Biol.</i> , <b>304</b> , 479 (2007).]		208255-80-5	Keep at -20°C
<b>Dibutyryl-cAMP, sodium salt</b> <b>[Bucladesine Sodium]</b>	for Pharmacology Research	023-16381	50 mg
		029-16383	250 mg
Cell-permeable cAMP analogue. Promotes neural stem cell or neural progenitor cell viability and differentiation into neurons. [Kim, H., <i>et al.</i> : <i>PLOS ONE</i> , <b>6</b> , e21744 (2011).]		16980-89-5	Keep at 2-10°C
<b>DMH1</b>	for Cell Biology	041-33881	10 mg
BMP inhibitor. Does not act on AMPK, ALK5, VEGFR2, or PDGFR. Promotes neurogenesis from human iPS cells when used in conjunction with SB431542. [Neely, MD., <i>et al.</i> : <i>ACS Chem. Neurosci.</i> , <b>3</b> , 482 (2012).]		1206711-16-1	Keep at -20°C
<b>Dorsomorphin</b> <b>[BML-275]</b>	for Cell Biology	044-33751	1 mg
		040-33753	5 mg
Inhibitor of AMPK and BMP signaling. Induces neural differentiation from human iPS cells. [Chen, Y., <i>et al.</i> : <i>Methods Mol. Biol.</i> , <b>1919</b> , 59 (2019).]		866405-64-3	Keep at -20°C
<b>Dorsomorphin Dihydrochloride</b>	for Cell Biology	041-33761	1 mg
		047-33763	5 mg
Water soluble form of dorsomorphin.		1219168-18-9	Keep at 2-10°C
<b>Fluoxetine hydrochloride</b>	for Biochemistry	068-04321	10 mg
		064-04323	50 mg
		068-04326	1 g
5-HT reuptake inhibitor. Promotes differentiation of human ES cell-derived neural progenitor cells. [Chang, EA., <i>et al.</i> : <i>Int. J. Dev. Biol.</i> , <b>54</b> , 707 (2010).]		56296-78-7	Keep below 25°C

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>Forskolin [Coleonol]</b>	for Biochemistry	067-02191	10 mg
		063-02193	25 mg
Activator of adenylate cyclase. Induces differentiation of mesenchymal stem cells into neurons when used in conjunction with bFGF. [Jang, S., et al. : <i>BMC Cell Biol.</i> , <b>11</b> , 25 (2010).]		66575-29-9	Keep at 2-10°C
<b>IBMX [3-Isobutyl-1-methylxanthine]</b>	Wako Special Grade	095-03413	100 mg
		099-03411	1 g
PDE inhibitor. Promotes differentiation of neural progenitor cells into neurons by enhancing cAMP signaling. [Lepski, G., et al. : <i>Front. Cell. Neurosci.</i> , <b>7</b> , 155 (2013).]		28822-58-4	Keep at 2-10°C (RT)
<b>Ketoconazole</b>	for Biochemistry	116-00551	100 mg
Cytochrome P450c17 inhibitor. Promotes oligodendrocyte differentiation from progenitor cells. [Hubler, Z., et al. : <i>Nature</i> , <b>560</b> , 372 (2018).]		65277-42-1	Keep at RT
<b>Metformin hydrochloride</b>	for Pharmacology Research	136-18662	25 g
		138-18661	100 g
Activator of LKB1/AMPK. Activates the aPKC-CBP pathway in neural progenitor cells to promote neurogenesis. [Wang, J., et al. : <i>Cell Stem Cell</i> , <b>11</b> , 23 (2012).]		1115-70-4	Keep below 25°C
<b>Miconazole nitrate</b>	for Biochemistry	134-12661	1 g
		130-12663	5 g
		132-12662	25 g
Azole antifungal agent. Promotes oligodendrocyte formation from a human pluripotent stem cell-derived cortical spheroid model. [Hubler, Z., et al. : <i>Nature</i> , <b>560</b> , 372 (2018).]		22832-87-7	Keep below 25°C
<b>PD173074</b>	for Cell Biology	160-26831	5 mg
FGFR inhibitor. Inhibits proliferation and differentiation of oligodendrocyte progenitor cells. [Bansal, R., et al. : <i>J. Neurosci. Res.</i> , <b>74</b> , 486 (2003).]		219580-11-7	Keep at -20°C
<b>SU5402</b>	for Cell Biology	197-16731	1 mg
		193-16733	5 mg
		191-16734	25 mg
FGFR1 inhibitor. Inhibits integrin β4-induced neural stem cell differentiation. [Su, L., et al.: <i>Int. J. Biochem. Cell Biol.</i> , <b>41</b> , 916 (2009).]		215543-92-3	Keep at -20°C
<b>Trazodone hydrochloride</b>	for Biochemistry	209-14964	500 mg
5-HT <sub>2A</sub> and α <sub>1</sub> -adrenergic receptor antagonist. Promotes neural differentiation of mouse and human neural progenitor cells. [Bortolotto, V., et al. : <i>ACS Chem. Neurosci.</i> , <b>8</b> , 2027 (2017).]		25332-39-2	Keep at 2-10°C
<b>CultureSure® 3, 3', 5-Triiodo-L-thyronine Sodium Salt [T3]</b>	for Cell Culture	038-25541	50 mg
Thyroid hormone. Promotes differentiation of oligodendrocyte progenitor cells. [Marta, CB., et al. : <i>J. Neurosci. Res.</i> , <b>53</b> , 251 (1998).]		1955/6/1	Keep at -20°C
<b>TWS119 [GSK-3β Inhibitor XII]</b>	for Cell Biology	206-17671	1 mg
GSK-3β inhibitor. Induces neural differentiation of mouse ES cells. [Ding, S., et al. : <i>Proc. Natl. Acad. Sci. USA</i> , <b>100</b> , 7632 (2003).]		601514-19-6	Keep at 2-10°C



Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>CultureSure® Y-27632</b>	for Cell Culture	030-24021	1 mg
		036-24023	5 mg
		034-24024	25 mg
		030-24026	100 mg
ROCK inhibitor. Component of a cocktail used for induction of neurons from fibroblasts. Tested for endotoxins, mycoplasma negativity, and cytotoxicity. [Hu, W., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>17</b> , 204 (2015).]		331752-47-7	Keep at -20°C
<b>CultureSure® 10mmol/L Y-27632 Solution, Animal-derived-free</b>	for Cell Culture	039-24591	300 µL
		035-24593	1 mL
Y-27632 dissolved in water at 10 mmol/L. No animal-derived components used as raw materials or in the manufacturing process. Filter-sterilized.		331752-47-7	Keep at -20°C
<b>Y-27632, MF</b>	for Cell Culture	259-00613	5 mg
		257-00614	25 mg
This product complies with ISO9001. The manufacturing process and analytical procedure are validated. Tested for endotoxin contamination, mycoplasma negative status, and viable bacteria counts.		331752-47-7	Keep at -20°C
<b>Y-27632</b>	for Cell Culture	252-00701	5 mg
		258-00703	25 mg
This product complies with ICH-Q7 (GMP for API) guidelines as a raw material for commercial production of regenerative medicine products. This is manufactured under properly controlled facilities.		331752-47-7	Keep at -20°C

## Cardiomyocytes

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>CultureSure® A419259 Trihydrochloride</b>	for Cell Culture	034-24801	1 mg
Src family inhibitor. Induces differentiation of human iPS cells into cardiomyocytes without the use of cytokines, albumin, or other proteins when used in conjunction with 5 compounds (CHIR99021, phorbol 12-myristate 13-acetate, KY03-I, XAV939, AG1478). Tested for endotoxins and mycoplasma negativity.		1435934-25-0	Keep at -20°C
<b>5-Azacytidine</b>	for Pharmacology Research	016-25361	50 mg
		012-25363	250 mg
		010-25364	1 g
DNA methyltransferase inhibitor. Induces differentiation of mesenchymal stem cells into cardiomyocytes. [Qian, Q., <i>et al.</i> : <i>Stem Cells Dev.</i> , <b>21</b> , 67 (2012).]		320-67-2	Keep at -20°C
<b>Ciclosporin A</b>	for Biochemistry	031-24931	50 mg
		037-24933	200 mg
Improves efficiency of induction of mouse and human iPS cells into cardiomyocytes and cardiac progenitor cells. [Fujiwara, M., <i>et al.</i> : <i>PLOS ONE</i> , <b>6</b> , e16734 (2006).]		59865-13-3	Keep at -20°C
<b>DMH1</b>	for Cell Biology	041-33881	10 mg
Selective BMP inhibitor. Does not act on AMPK, ALK5, VEGFR2, or PDGFR. Efficiently induces differentiation of mouse ES cells into cardiomyocytes. [Ao, A., <i>et al.</i> : <i>PLOS ONE</i> , <b>7</b> , e41627 (2012).]		1206711-16-1	Keep at -20°C

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>Dorsomorphin [BML-275]</b>	for Cell Biology	044-33751	1 mg
		040-33753	5 mg
Inhibitor of AMPK and BMP signaling. Induces differentiation of mouse ES cells into cardiomyocytes. [Hao, J., <i>et al.</i> : <i>PLOS ONE</i> , <b>3</b> , e2904 (2008).]		866405-64-3	Keep at -20°C
<b>Dorsomorphin Dihydrochloride</b>	for Cell Biology	041-33761	1 mg
		047-33763	5 mg
Water-soluble form of dorsomorphin.		1219168-18-9	Keep at 2-10°C
<b>CultureSure® IWP-2</b>	for Cell Culture	034-24301	5 mg
		030-24303	25 mg
Inhibits Wnt palmitoylation by inactivating Porcupine (Porcn). Promotes differentiation of human iPS cells into cardiomyocytes. Tested for mycoplasma negativity and cytotoxicity. [Hoang, P. <i>et al.</i> : <i>Nat. Protoc</i> , <b>13</b> , 723 (2018).]		686770-61-6	Keep at 2-10°C
<b>CultureSure® KY03- I</b>	for Cell Culture	032-24721	2 mg
		038-24723	10 mg
		036-24724	25 mg
		032-24726	100 mg
Wnt inhibitor. KY02111 is a compound that induces differentiation of human ES/iPS cells into cardiomyocytes. KY03-I efficiently induces differentiation into cardiomyocytes at a lower concentration than KY02111 without the use of serum, proteins, or cytokines. Tested for endotoxins and mycoplasma negativity. [Minami, I., <i>et al.</i> : <i>Cell Rep.</i> , <b>2</b> , 1448 (2012).]		1609117-17-0	Keep at -20°C
<b>Spermine</b>	for Biochemistry	198-09811	250 mg
		194-09813	1 g
Induces differentiation into cardiomyocytes. [Sasaki, T., <i>et al.</i> : <i>Differentiation</i> , <b>76</b> , 1023 (2008).]		71-44-3	Keep at 2-10°C
<b>CultureSure® 3, 3', 5-Triiodo-L-thyronine Sodium Salt [T3]</b>	for Cell Culture	038-25541	50 mg
Thyroid hormone. Promotes maturation of human iPS cell-derived cardiomyocytes. [Yang, X., <i>et al.</i> : <i>J. Mol. Cell. Cardiol.</i> , <b>72</b> , 296 (2014).]		1955/6/1	Keep at -20°C
<b>Trichostatin A</b>	for Cell Biology	203-17561	1 mg
		209-17563	5 mg
Histone deacetylase inhibitor. Induces differentiation into cardiomyocytes. [Oyama, T., <i>et al.</i> : <i>J. Cell. Biol.</i> , <b>176</b> , 329 (2007).]		58880-19-6	Keep at -20°C
<b>Zebularine [NSC 309132]</b>	for Genetic Research	267-01891	5 mg
DNA methyltransferase inhibitor. Induces differentiation of mesenchymal stem cells into cardiomyocytes. [Naeem, N., <i>et al.</i> : <i>Cardiovasc. Ther.</i> , <b>31</b> , 201 (2013).]		3690/10/6	Keep at 2-10°C

## Hepatocytes

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN <sup>®</sup>	Storage Condition
<b>Sodium Butyrate</b>	—	193-01522	25 g
		197-01525	500 g
Histone deacetylase inhibitor. Promotes ES cell self-renewal and iPS cell generation. Also induces differentiation of mouse ES cells into pancreatic progenitor cells and hepatic progenitor cells. When used in conjunction with activin A, it induces differentiation of mouse ES cells into hepatocytes. [Ware, CB., <i>et al.</i> : <i>Cell Stem Cell</i> , <b>4</b> , 359 (2009).] [Liang, G., <i>et al.</i> : <i>J. Biol. Chem.</i> , <b>285</b> , 25516 (2010).] [Ren, M., <i>et al.</i> : <i>J. Cell. Biochem.</i> , <b>109</b> , 236 (2010).] [Zhou, M., <i>et al.</i> : <i>J. Cell. Biochem.</i> , <b>109</b> , 606 (2010).]		156-54-7	Keep at RT

## Osteogenesis and Osteoblasts

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN <sup>®</sup>	Storage Condition
<b>AICAR</b>	for Cell Biology	015-22531	100 mg
		011-22533	1 g
AMPK activator. Promotes osteogenic differentiation of human amnion-derived mesenchymal stem cells and rabbit bone marrow-derived mesenchymal stem cells. [Wu, Q., <i>et al.</i> : <i>Int. J. Artif. Organs</i> , <b>34</b> , 1128 (2011).]		2627-69-2	Keep at -20°C
<b>L-Ascorbic Acid Phosphate Magnesium Salt n-Hydrate</b>	for Biochemistry	013-12061	10 g
		019-12063	50 g
Ascorbic acid derivative. Maintains the differentiation potential of bone marrow-derived mesenchymal stem cells. [Bae, SH., <i>et al.</i> : <i>Growth Factors</i> , <b>33</b> , 71 (2015).]		1713265-25-8	Keep at RT
<b>Purmorphamine</b>	for Cell Biology	166-23991	5 mg
Agonist of hedgehog signaling. Induces differentiation of mesenchymal progenitor cells and preosteoblast cells into osteoblasts. [Wu, X., <i>et al.</i> : <i>Chem. Biol.</i> , <b>11</b> , 1229 (2004).]		483367-10-8	Keep at -20°C

## Retinal Cells

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN <sup>®</sup>	Storage Condition
<b>CultureSure<sup>®</sup> 3mmol/L CKI-7 Dihydrochloride Solution, Animal-derived-free</b>	for Cell Culture	039-24611	1 mL
Casein kinase (CK1) inhibitor. When used in conjunction with SB431542 and Y-27632, it induces differentiation of human ES/iPS cells into retinal progenitor cells in a medium that does not contain serum and feeder cells. Tested for endotoxins, mycoplasma negativity, and cytotoxicity. No animal-derived components used as raw materials or in the manufacturing process. Filter-sterilized. [Osakada, M., <i>et al.</i> : <i>J. Cell Sci.</i> , <b>122</b> , 3169 (2009).]		1177141-67-1	Keep at -20°C
<b>DAPT [γ-Secretase Inhibitor IX]</b>	for Cell Biology	043-33581	5 mg
γ-secretase inhibitor. Preferentially induces cone photoreceptor subtypes in retinal cell differentiation. [Zerti, D., <i>et al.</i> : <i>Stem Cells</i> , <b>38</b> , 45 (2020).]		208255-80-5	Keep at -20°C
<b>CultureSure<sup>®</sup> 3, 3', 5-Triiodo-L-thyronine Sodium Salt [T3]</b>	for Cell Culture	038-25541	50 mg
Thyroid hormone. Thyroid hormone signaling specifies cone subtypes in retinal cell differentiation. [Eldred, KC., <i>et al.</i> : <i>Science</i> , <b>362</b> , eaau6348 (2018).]		1955/6/1	Keep at -20°C

## Mesenchymal Stem Cells

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>5-Azacytidine</b>	for Pharmacology Research	016-25361	50 mg
		012-25363	250 mg
		010-25364	1 g
DNA methyltransferase inhibitor. Induces differentiation of mesenchymal stem cells into cardiomyocytes. [Qian, Q., et al. : <i>Stem Cells Dev.</i> , <b>21</b> , 67 (2012).]		320-67-2	Keep at -20°C
<b>Dexamethasone</b>	for Biochemistry	047-18863	100 mg
		041-18861	1 g
Inhibits osteogenesis and promotes adipogenesis of mesenchymal stem cells. [Liang, M., et al. : <i>FEBS Open Bio.</i> , <b>10</b> , 211 (2020).]		1950/2/2	Keep at 2-10°C
<b>Forskolin</b>	for Biochemistry	067-02191	10 mg
		063-02193	25 mg
Activator of adenylate cyclase. Induces differentiation of mesenchymal stem cells into neurons when used in conjunction with bFGF. [Jang, S., et al. : <i>BMC Cell Biol.</i> , <b>11</b> , 25 (2010).]		66575-29-9	Keep at 2-10°C
<b>LY364947</b>	for Cell Biology	123-05981	5 mg
Selective ATP-competitive inhibitor of TGF-β1 receptors (TGF-βR1, TGFR-1, TβR-1, ALK5). Inhibits chondrogenesis of human mesenchymal stem cells and differentiation of human ES cells into definitive endoderm. Unlike other inhibitors, it acts reversibly on Nodal/Activin signaling that regulates differentiation into definitive endoderm and neuroectoderm. [Li Z., et al. : <i>J. Cell Mol. Med.</i> , <b>14</b> , 1338 (2010).] [Jaremko KL., et al. : <i>Stem Cell Res.</i> , <b>10</b> , 489 (2013).]		396129-53-6	Keep at -20°C
<b>L-Ascorbic Acid Phosphate Magnesium Salt n-Hydrate</b>	for Biochemistry	013-12061	10 g
		019-12063	50 g
Ascorbic acid derivative. Maintains the differentiation potential of bone marrow-derived mesenchymal stem cells. [Bae, SH., et al. : <i>Growth Factors</i> , <b>33</b> , 71 (2015).]		1713265-25-8	Keep at RT
<b>SP 600125</b>	for Cell Biology	197-16591	5 mg
		193-16593	25 mg
Selective JNK inhibitor. Inhibits BMP9-induced osteogenic differentiation of mesenchymal stem cells. [Zhao, Y., et al. : <i>BMB Rep.</i> , <b>46</b> , 422 (2013).]		129-56-6	Keep at -20°C
<b>Troglitazone</b>	for Cell Biology	209-19481	5 mg
		205-19483	50 mg
PPARγ agonist. Induces differentiation of human mesenchymal stem cells into adipocytes and inhibits differentiation into osteoblasts. [Benvenuti, S., et al. : <i>J. Endocrinol. Invest.</i> , <b>30</b> , RC26 (2007).]		97322-87-7	Keep at -20°C
<b>Zebularine [NSC 309132]</b>	for Genetic Research	267-01891	5 mg
DNA methyltransferase inhibitor. Induces differentiation of mesenchymal stem cells into cardiomyocytes. [Naeem, N., et al. : <i>Cardiovasc. Ther.</i> , <b>31</b> , 201 (2013).]		3690/10/6	Keep at 2-10°C

For Efficient Reprogramming

For Undifferentiated State Maintenance

For Differentiation Induction

For Organoid cultures

## Other Cell Types

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>Cyclopamine</b>	for Cell Biology	038-19311	1 mg
Inhibitor of hedgehog (Hh) signaling. Induces differentiation of human ES cells into hormone-expressing endocrine cells. [D'Amour, KA., et al. : <i>Nat. Biotechnol.</i> , <b>24</b> , 1392 (2006).]		4449-51-8	Keep at -20°C
<b>LY294002</b>	for Biochemistry	129-04861	5 mg
		125-04863	10 mg
		123-04864	25 mg
Phosphatidylinositol 3-kinase inhibitor. Induces differentiation of mouse ES cells into insulin-producing cells.		154447-36-6	Keep at -20°C
<b>Rapamycin</b>	for Cell Biology	184-02531	1 mg
		180-02533	10 mg
		188-02534	50 mg
mTOR inhibitor. Promotes differentiation of human iPS cells into mesendoderm and blood progenitor cells. Also promotes lentiviral transduction of hematopoietic stem cells. [Wang, CX., et al. : <i>Blood</i> , <b>124</b> , 913 (2014).] [Nazareth, EJP., et al. : <i>Stem Cell Reports</i> , <b>6</b> , 679 (2016).]		53123-88-9	Keep at -20°C
<b>Rosiglitazone [BRL 49653]</b>	for Cell Biology	184-02651	5 mg
		180-02653	25 mg
PPAR $\gamma$ agonist. Promotes differentiation of the pluripotent embryonic fibroblast cell line C3H10 T1/2 cells into adipocytes. [Warke, I., et al. : <i>Nutr. Metab. (Lond)</i> , <b>8</b> , 30 (2011).]		122320-73-4	Keep at 2-10°C
<b>Sodium Cromoglicate</b>	for Pharmacology Research	193-15231	1 g
		199-15233	5 g
Promotes differentiation of human iPS cells into pancreatic endocrine cells. [Kondo, Y., et al. : <i>Diabetologia</i> , <b>60</b> , 1454 (2017).]		15826-37-6	Keep at RT

## For Organoid Cultures

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>CultureSure® A-83-01</b> <b>[TGF-βR I Kinase Inhibitor IV]</b>	for Cell Culture	039-24111	2 mg
		035-24113	10 mg
Commonly used as an additive for long-term organoid growth. Tested for endotoxin contamination, mycoplasma negative status, and cytotoxicity.		909910-43-6	Keep at -20°C
<b>CultureSure® CHIR99021</b>	for Cell Culture	038-23101	1 mg
		034-23103	5 mg
		032-23104	100 mg
Highly selective GSK-3β inhibitor. It is used when Establishment organoids of various organs. It has also been reported that culture of human iPS cells in a medium containing SB431542, dorsomorphin, and CHIR99021 induces an embryoid body-like state. Tested for endotoxin contamination, mycoplasma negative status, and cytotoxicity. [Mahe, MM., et al. : <i>Curr. Protoc. Mouse Biol.</i> , <b>3</b> , 217 (2013).] [Xia, Y., et al. : <i>Nat. Protoc.</i> , <b>9</b> , 2693 (2014).] [Koeler, KR., and Hashino, E. : <i>Nat. Protoc.</i> , <b>9</b> , 1229 (2014).] [Dye, BR., et al. : <i>Elife</i> , <b>4</b> , e05098 (2015).] [Fujimori, K., et al. : <i>Stem Cell Reports.</i> , <b>9</b> , 1 (2017).] [Hoang, P., et al. : <i>Nat. Protoc.</i> , <b>13</b> , 723 (2018).] [Wimmer, RA., et al. : <i>Nature</i> , <b>565</b> , 505 (2019).] [Noor, N., et al. : <i>Adv. Sci. (Weinh)</i> , <b>6</b> , 1900344 (2019).]		252917-06-9	Keep at -20°C
<b>CHIR99021, MF</b>	for Cell Culture	032-25441	5 mg
		038-25443	25 mg
This product complies with ISO9001. The manufacturing process and analytical procedure are validated. Tested for endotoxin contamination, mycoplasma negative status, and viable bacteria counts.		252917-06-9	Keep at -20°C
<b>CultureSure® 10mmol/L CHIR99021 DMSO Solution, Animal-derived-free</b>	for Cell Culture	038-24681	300 μL
CHIR99021 solution adjusted to 10 mmol/L with DMSO. No animal-derived products are used in the raw materials or manufacturing process. Filter sterilized.		252917-06-9	Keep at -20°C
<b>DAPT</b> <b>[γ-Secretase Inhibitor IX]</b>	for Cell Biology	043-33581	5 mg
gamma-secretase inhibitor. Used as a component of medium when differentiation of brain organoid.		208255-80-5	Keep at -20°C
<b>Dexamethasone</b>	for Biochemistry	047-18863	100 mg
		041-18861	1 g
Used as a component of hepatocyte differentiation medium in the establishment of liver organoids. [Huch, M., et al. : <i>Cell</i> , <b>160</b> , 299 (2015).]		1950/2/2	Keep at 2-10°C
<b>Erlotinib Hydrochloride</b>	for Pharmacology Research	057-09111	100 mg
		053-09113	500 mg
Epidermal growth factor receptor (EGFR) tyrosine kinase inhibitor. Promotes differentiation of urothelial organoids. [Santos, CP., et al. : <i>Nat. Commun.</i> , <b>10</b> , 4407 (2019).]		183319-69-9	Keep at -20°C
<b>Forskolin</b> <b>[Coleonol]</b>	for Biochemistry	067-02191	10 mg
		063-02193	25 mg
Activator of adenylate cyclase. Used in culture liver organoids.		66575-29-9	Keep at 2-10°C



Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN <sup>®</sup>	Storage Condition
<b>Heparin Sodium</b>	for Cell Culture	084-10393	1 g
		082-10394	5 g
A glycosaminoglycan that acts as an anticoagulant. It has been used as one of components of medium in generation of kidney organoids from human pluripotent stem cells. [Takasato, M., <i>et al.</i> : <i>Nat. Protoc.</i> , <b>11</b> , 1681 (2016).]		9041/8/1	Keep at 2-10°C
<b>CultureSure<sup>®</sup> IWP-2</b>	for Cell Culture	034-24301	5 mg
		030-24303	25 mg
Inactivates Porcupine (Porcn), thereby suppressing palmitoylation of Wnt proteins. Used as one of the components of medium for cardiomyocyte Differentiation from iPSCs. Tested for endotoxins, mycoplasma negativity, and cytotoxicity. [Noor, N., <i>et al.</i> : <i>Adv. Sci. (Weinh)</i> , <b>6</b> , 1900344 (2019).]		686770-61-6	Keep at 2-10°C
<b>CultureSure<sup>®</sup> IWR-1-endo [endo-IWR 1] [IWR1e]</b>	for Cell Culture	033-25133	25 mg
Inhibitor of Wnt signaling. It stabilizes the $\beta$ -catenin-degrading complex (composed of Axin2, Apc, Ck1, and Gsk3 $\beta$ ) and promotes the degradation of $\beta$ -catenin. Used for self-organization in neocortical organoid culture from human ES cells. Tested for endotoxin contamination, mycoplasma negative status. [Kadoshima, T., <i>et al.</i> : <i>Proc. Natl. Acad. Sci. USA</i> , <b>110</b> , 20284 (2013).]		1127442-82-3	Keep at -20°C
<b>PD0325901</b>	for Cell Biology	162-25291	5 mg
		168-25293	25 mg
Used during inner ear organoid culture. [Koehler, KR., <i>et al.</i> : <i>Nat. Protoc.</i> , <b>9</b> , 1229 (2014).]		391210-10-9	Keep at -20°C
<b>Prostaglandin E2</b>	for Biochemistry	165-10813	1 mg
		163-10814	5 mg
		169-10811	10 mg
Primary product of the arachidonic acid/cyclooxygenase pathway. It has been reported to be essential for the growth and maintenance of long-term human prostate organoid culture. [Karthus, WR., <i>et al.</i> : <i>Cell</i> , <b>159</b> , 163 (2014).]		363-24-6	Keep at -20°C
<b>all-trans-Retinoic Acid</b>	for Biochemistry	186-01114	50 mg
		182-01116	100 mg
		182-01111	250 mg
		188-01113	1 g
Endogenous retinoic acid receptor agonist. It induces differentiation into neurons and is also used during brain organoid culture. [Lancaster, MA., <i>et al.</i> : <i>Nat. Protoc.</i> , <b>9</b> , 2329 (2014).]		302-79-4	Keep at -20°C
<b>Rosiglitazone [BRL 49653]</b>	for Cell Biology	184-02651	5 mg
		180-02653	25 mg
PPAR $\gamma$ agonist. Promotes differentiation of urothelial organoids when used in combination with erlotinib. [Santos, CP., <i>et al.</i> : <i>Nat. Commun.</i> , <b>10</b> , 4407 (2019).]		122320-73-4	Keep at 2-10°C
<b>SB202190</b>	for Cell Biology	193-13531	1 mg
p38MAPK inhibitor. Used in culture gastric organoids. [Bartfeld, S., <i>et al.</i> : <i>Gastroenterology</i> , <b>148</b> , 126 (2015).]		152121-30-7	Keep at -20°C
<b>CultureSure<sup>®</sup> SB431542</b>	for Cell Culture	031-24291	5 mg
		037-24293	25 mg
It has been reported that 3 molecules (SB431542, dorsomorphine, and CHIR99021) enhanced hPSC differentiation into three germ layers with a chemically transitional embryoid-body-like state (CTraS). Tested for endotoxin contamination, mycoplasma negative status, and cytotoxicity. [Fujimori, K., <i>et al.</i> : <i>Stem Cell Reports.</i> , <b>9</b> , 1 (2017).]		301836-41-9	Keep at -20°C

Product Name	Grade	Wako Cat. No	Pkg. Size
Outline		CAS RN®	Storage Condition
<b>CultureSure® 5mmol/L SB431542 DMSO Solution, Animal-derived-free</b>	for Cell Culture	033-24631	1 mL
SB431542 dissolved in DMSO at 5 mmol/L. No animal-derived components used as raw materials or in the manufacturing process. Filter-sterilized.		301836-41-9	Keep at -20°C
<b>Testosterone</b>	for Biochemistry	201-20551	1 g
		207-20553	5 g
Endogenous androgen receptor agonist. Used in culturing human endometrial organoids. [Wiwatpanit, T., <i>et al.</i> : <i>J. Clin. Endocrinol. Metab.</i> , <b>105</b> , 769 (2020).]		58-22-0	Keep at RT
<b>CultureSure® Y-27632</b>	for Cell Culture	030-24021	1 mg
		036-24023	5 mg
		034-24024	25 mg
		030-24026	100 mg
ROCK inhibitor. Used in brain organoid culture. Tested for endotoxin contamination, mycoplasma negative status, and cytotoxicity. [Lancaster, MA., <i>et al.</i> : <i>Nat. Protoc.</i> , <b>9</b> , 2329 (2014).]		331752-47-7	Keep at -20°C
<b>CultureSure® 10mmol/L Y-27632 Solution, Animal-derived-free</b>	for Cell Culture	039-24591	300 µL
		035-24593	1 mL
Y-27632 dissolved in water at 10 mmol/L. No animal-derived components used as raw materials or in the manufacturing process. Filter-sterilized.		331752-47-7	Keep at -20°C
<b>Y-27632, MF</b>	for Cell Culture	259-00613	5 mg
		257-00614	25 mg
This product complies with ISO9001. The manufacturing process and analytical procedure are validated. Tested for endotoxin contamination, mycoplasma negative status, and viable bacteria counts.		331752-47-7	Keep at -20°C
<b>Y-27632</b>	for Cell Culture	252-00701	5 mg
		258-00703	25 mg
This product complies with ICH-Q7 (GMP for API) guidelines as a raw material for commercial production of regenerative medicine products. This is manufactured under properly controlled facilities.		331752-47-7	Keep at -20°C

For Efficient Reprogramming

For Undifferentiated State Maintenance

For Differentiation Induction

For Organoid cultures

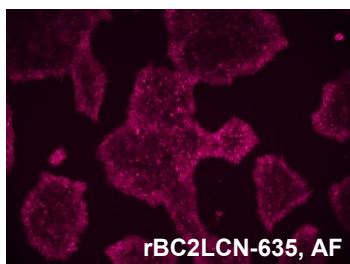
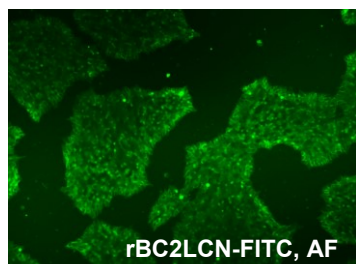
## Human ES/iPS Cell Undifferentiation Markers rBC2LCN series

rBC2LCN was developed in collaboration with the National Institute of Advanced Industrial Science and Technology.

### Stain Human ES/iPS Cells by Simply Adding to the Culture Medium

Undifferentiated human ES/iPS cells can be observed in 30 to 40 minutes by simply adding this time-saving undifferentiation marker to the culture medium.

This is an animal-free product; no animal-derived components are used as raw materials.



#### Excitation and fluorescence wavelengths

	Excitation	Emission
rBC2LCN-FITC	495 nm	520 nm
rBC2LCN-635	634 nm	654 nm

## Reagent for Removal of Undifferentiated Human ES/iPS Cells StemSure<sup>®</sup> hPSC Remover (rBC2LCN-PE38, AF)

BC2LCN has a very high affinity for H type 3 (Fuc $\alpha$ 1-2Gal $\beta$ 1-3GalNAc), a mucin-like O-type glycans on the cell surface of undifferentiated human ES/iPS cells. After being taken up into the cell, this product inhibits protein synthesis and causes cell death. Therefore, it can be used as a marker for undifferentiated human ES/iPS cells.

#### Features

- Selectively removes undifferentiated human ES/iPS cells
- Can be directly added to the culture medium without cell dispersion
- No animal-derived components used as raw materials or in manufacturing processes

#### Product Properties

- Tested for sterility
- Dissolved in PBS(-)
- Concentration: 0.09 - 0.11 mg/mL  
(indicated on product label)
- Tested for effectiveness: Confirmed for human iPS cell killing performance
- Tested for endotoxin

#### Product Information

Wako Cat. No	Product Name	Storage Condition	Grade	Pkg. Size
029-18061	BC2LCN [AiLecS1] Lectin, recombinant, Solution Unlabeled	Keep at -20°C	for Glycobiology	1 mg
025-18063				1 mg×5
184-03511	rBC2LCN-FITC, AF [AiLecS1-FITC] [Ex. 495nm, Em 520nm]	Keep at -20°C	for Cell Staining	100 $\mu$ L
180-03513				100 $\mu$ L×5
187-03501	rBC2LCN-635, AF [AiLecS1-635] [Ex. 634nm, Em. 654nm]	Keep at -20°C	for Cell Staining	100 $\mu$ L
192-19081	StemSure <sup>®</sup> hPSC Remover (rBC2LCN-PE38, AF)	Keep at -20°C	for Cell Culture	100 $\mu$ L

# Directly Added to Culture Medium

# Cytokine Solutions

This line of products are filter-sterilized solutions, and no solubilization step is required. Contamination during solubilization and loss of protein during filter sterilization are prevented.

## Activin A Solution, Human, recombinant

Activin A is a growth factor in the TGF- $\beta$  family. It is involved in many processes including cell proliferation and differentiation, induction of apoptosis, and neuronal survival.

## SCF Solution, Human, recombinant

SCF is a growth factor that regulates hematopoiesis by signaling through the c-kit receptor. It is used for inducing differentiation of pluripotent stem cells into hematopoietic stem cells, blood cell lineage cells, and immune system cells, as well as for their culture.

## KGF Solution, Human, recombinant

A member of the FGF family, KGF promotes cell differentiation and proliferation. KGF also promotes many processes such as morphogenesis during embryogenesis and tissue repair. It is used for inducing differentiation of ES/iPS cells into epithelial cell lineage and pancreatic cells, as well as for their culture.

## Features

- **Animal origin free**
- **Negligible variation among lots**  
Production lot size is large, and variation among lots is negligible.
- **Tested for Endotoxins**  
These products are safe for cell culture.

## Product Information

Wako Cat. No	Product Name	Storage Condition	Grade	Pkg. Size
014-27621	Activin A Solution, Human, recombinant	Keep at -80°C	for Cell Culture	10 $\mu$ g
010-27623				50 $\mu$ g
195-19071	SCF Solution, Human, recombinant	Keep at -80°C	for Cell Culture	10 $\mu$ g
191-19073				50 $\mu$ g
116-01151	KGF Solution, Human, recombinant	Keep at -80°C	for Cell Culture	10 $\mu$ g

