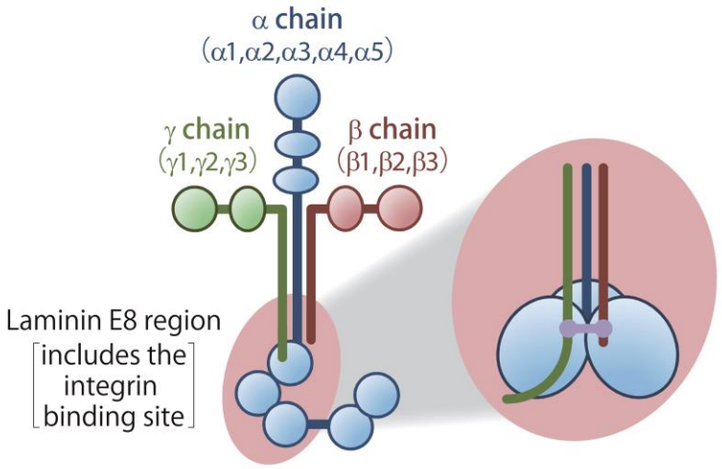
iMatrix

PRODUCTS CATALOG

MATRIXOME

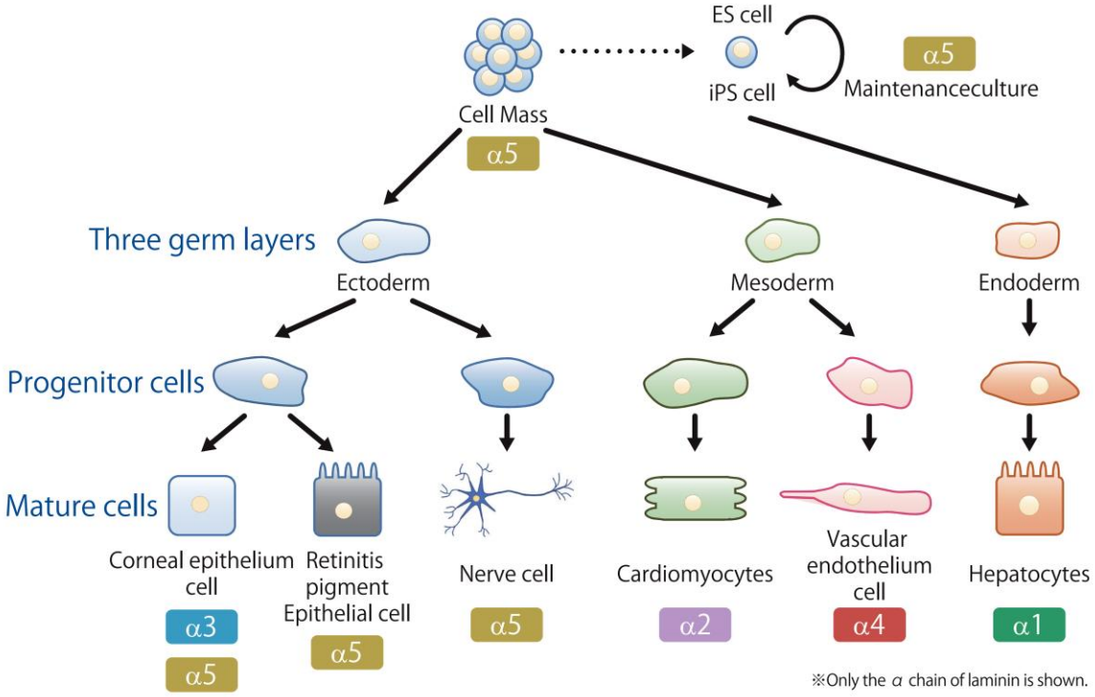
Laminin is a cell adhesion molecule

Full length laminin → Laminin E8 Recombinant fragment → High-purity purification of E8



- Laminin is a type of extracellular matrix protein.
- A heterotrimeric molecule in which α-chain, β-chain, and γ-chain are associated in a ratio of 1: 1: 1.
- Twelve isoforms have been identified.
- It functions as an adhesion molecule for various cells in the body.
- It interacts with the cell membrane receptor integrin in a region called "E8".
- Promotes cell survival and controls its behavior (migration, polarization, etc.)

Combination of laminin and cells in vivo



※Only the α chain of laminin is shown.

Cell Culture iMatrix-series

iMatrix-511
[α5,β1,γ1]

α5

iMatrix-511 silk
[α5,β1,γ1]

α5

iMatrix-411
[α4,β1,γ1]

α4

iMatrix-332
[α3,β3,γ2]

α3

iMatrix-221
[α2,β2,γ1]

α2

iMatrix-111
[α1,β1,γ1]

α1

- The function of laminin to control cell behavior and fate mainly depends on the α chain (5 types).
- Laminin changes during the differentiation stage of cells.

By utilizing the combination of laminin and cells in vivo for cell culture, it is possible to efficiently induce differentiation of pluripotent stem cells.

iMatrix-511

World's First

Laminin-511 E8 Fragment
High-purity product

FREE SAMPLE

USE Maintenance and expansion culture of pluripotent stem cells

iMatrix-511 silk

Laminin-511 E8 Fragment
High-purity product

FREE SAMPLE

Same performance of Matrix-511 at a lower cost

Methods for culturing ES/iPS cells

New culture method, no coating required

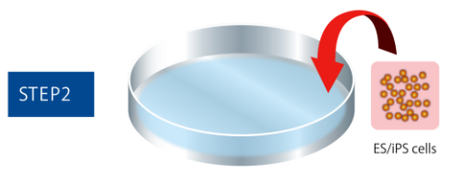
Products
iMatrix-511・iMatrix-511silk

Coating Method

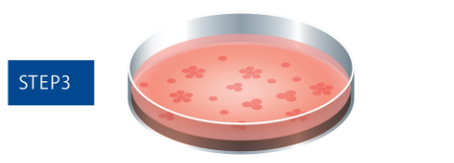
iMatrix-511/iMatrix-511silk concentration:
0.5μg/cm²

iMatrix-511/iMatrix-511silk to coat

〈Coating Times〉
4℃：overnight / room temp：3 hours / 37℃：1 hour



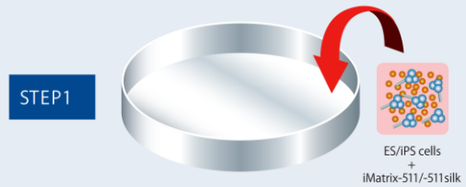
Seed cells



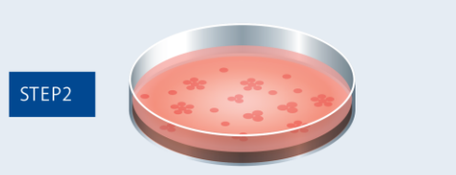
・Coating method：1mg of iMatrix-511/iMatrix-511silk is enough for ~35 6-well plates

Pre-mix Method

iMatrix-511/iMatrix-511silk concentration:
0.25μg/cm²



Mix iMatrix-511/iMatrix-511silk and cells and add to plate



Method Benefits

1. No coating curing time
2. No wasted cells or plates
3. Half the amount used

※The conditions for the pre-mix method may differ depending on the combination of cells and medium. Please contact Matrixome Co., Ltd. for consultation on culture conditions.

・Pre-mix method：1mg of iMatrix-511/iMatrix-511silk is enough for ~70 6-well plates

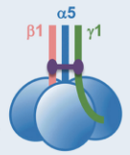
Reference：Miyazaki et al. *Sci Rep.* **7**, 41165, (2017)

Catalog #	Product Name	Package Sizes	Manufcaturing Raw Material	Refined Raw Materials	Product Grade
892 011	iMatrix-511	350μg：175μg×2pcs.	Gene Recombination CHO-S cells	CHO-S cell culture	Research Grade
892 012		1,050μg：175μg×6pcs.			
892 021	iMatrix-511silk	1,050μg：175μg×6pcs.	Gene Recombination Silkworm production system	Silkworm cocoon	Research Grade

How to Use:

STEP1 Dilute iMatrix-511 with PBS (-) and coat the culture vessel at ※0.5μg/cm²
※The optimum coating concentration depends on the cell type and the medium used.

STEP2 After coating, remove the iMatrix-511 solution & quickly seed the cells without drying.



Laminin511E8 Fragement

For use in ES/iPS cell culture
EDTA cell detachment method

A new cell detachment method that doesn't require a scraper or enzymes

Products
iMatrix-511・iMatrix-511silk

For 6-well plates

1. Culture ES/iPS cells on iMatrix-511 to 80-90% confluency
2. Aspirate the old medium
3. Wash twice with 2ml/well of 5mM EDTA/PBS (-)
4. 1ml/well 5mM EDTA/PBS (-) at 37℃ for 10-15 minutes ※Detachment phase
5. Aspirate the 5mM EDTA/PBS (-)
6. Add 1 ml / well Y27632 medium and remove cells by pipetting 5-10 times. And dispersed in a single cell

※Adjust the incubation time depending on the cell condition.

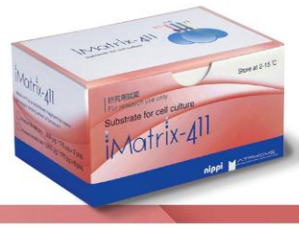
Cells are thought to accumulate the damage they receive. Cell scrapers and enzymes for detachment used in passaging damage cells.

EDTA detachment + Pre-Mix Method

Makes efficient and low cost cell culture possible!

iMatrix-411

Laminin-411 E8 Fragment
High-purity product



FREE SAMPLE

USE Induction of differentiation of vascular endothelial cells from ES / iPS cells.

- Laminin-411 is abundant in the basement membrane of blood vessels and is thought to be involved in maintaining vascular homeostasis by binding to the integrin $\alpha 6\beta 1$ protein on the cell surface of vascular endothelial cells. It is also known to adhere to leukocytes and platelets, which is important for the immune system.
- iMatrix-411 is a substrate that has been reported to efficiently induce pluripotent stem cells to vascular endothelial cells and bile duct epithelial cells by binding to the integrin $\alpha 6\beta 1$ protein.

Catalog #	Product Name	Product Sizes	Product Grade
892 041	iMatrix-411	350μg:175μg×2pcs.	RUO
892 042		1,050μg:175μg×6pcs.	RUO

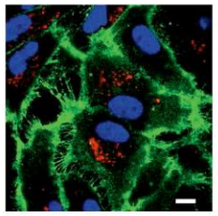


Fig. Vascular endothelial cells derived from ES cells [KhES-1]

CD31: Vascular endothelial cells
Ac-LDL: Cholesterol taken up by vascular endothelial cells
DAPI: Nucleus

Reference: Ohta et al. *Sci Rep.* **6**, 35680, (2016)

iMatrix-332

Laminin-332 E8 Fragment
High-purity product

FREE SAMPLE

USE Induction of differentiation from iPS cells to corneal epithelial cells.

- iMatrix-332 is the highly purified E8 region (including the integrin binding site) of human laminin-332.
- Laminin-332 is present in keratinocytes and cornea and is known to bind to integrin $\alpha 3\beta 1$ and $\alpha 6\beta 4$ proteins.

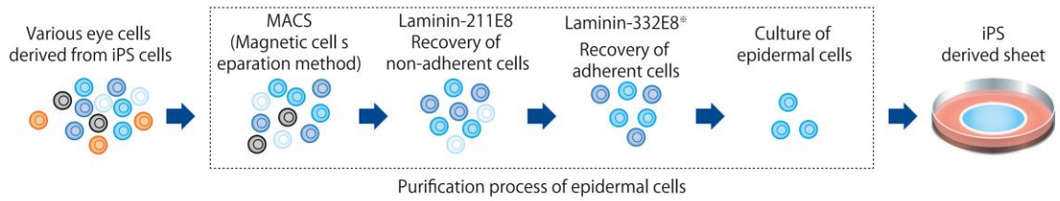


Fig. How to purify only corneal epithelial cells from various iPS cell-derived eye cells

Catalog #	Product Name	Product Size	Product Grade
892 031	iMatrix-332	350μg:175μg×2pcs.	RUO
892 032		1,050μg:175μg×6pcs.	RUO

*Laminin-332E8 is the main component of iMatrix-332.

Reference: Shibata et al. *Stem Cell Reports.* **14**(4), 663-676, (2020)

iMatrix-221

Laminin-221 E8 Fragment
High-purity product

FREE SAMPLE

USE Purification / maintenance culture of cardiomyocytes / skeletal muscle cells

- Laminin-221 is abundant in the basement membrane of muscle tissues such as myocardium and skeletal muscle, and binds to the integrin $\alpha 7X2\beta 1$ protein specifically expressed in this muscle tissue. It is thought that it is involved in the differentiation and function maintenance of muscle cells.
- iMatrix-221 is a substrate that exhibits high adhesive activity and selectivity as a culture medium for cardiomyocytes and skeletal muscle cells.

Catalog #	Product Name	Product Size	Product Grade
892 061	iMatrix-221	350μg:175μg×2pcs.	RUO
892 062		1,050μg:175μg×6pcs.	RUO

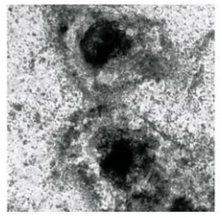


Fig. iPSC-derived cardiomyocytes cultured on iMatrix-221

※Scan the QR code for a video

iMatrix-111

Laminin-111 E8 Fragment
High-purity product

FREE SAMPLE

USE Induction of differentiation from human iPS cells to hepatoblast-like cells.

- iMatrix-111 is the highly purified E8 region (including the integrin binding site) of human laminin-111.
- Laminin-111 is known to be present in the liver and bind to integrin $\alpha 7X2\beta 1$ and $\alpha 6\beta 1$ proteins, and is thought to be involved in the maintenance of liver tissue function.

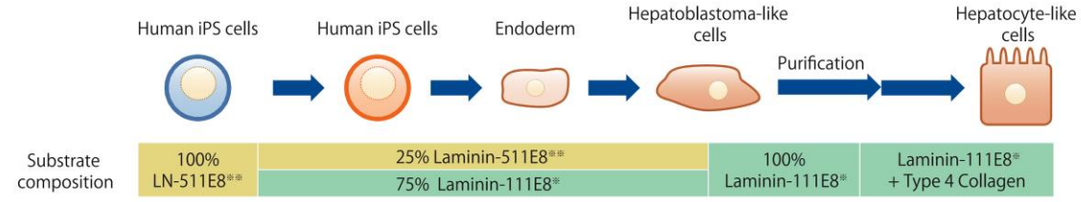


Fig. How to efficiently induce human iPS cells to hepatoblast-like cells and hepatocyte-like cells

Catalog #	Product Name	Product Size	Product Grade
892 071	iMatrix-111	350μg:175μg×2pcs.	RUO
892 072		1,050μg:175μg×6pcs.	RUO

*Laminin-111E8 is the main component of iMatrix-111.
**Laminin-511E8 is the main component of iMatrix-511

Reference: Takayama et al. *Hepatol Commun.* **1**(10), 1058-1069,

Clinical Grade Products for Culture of Clinical Cells

Biological Raw Material Standards Confirmed

iMatrix-511 MG

Please contact Matrixome directly for product details and prices.
※This product is not a drug or end-use product.
This product is a recombinant protein created based on the gene of the human laminin 511E8 fragment.
The amino acid sequence is the same as that of iMatrix-511 and iMatrix-511Silk.

	iMatrix-511silk	iMatrix-511	iMatrix-511MG
Product Grade	Reasearch Use Only	Research Use Only	Clinical Application
Conformity with Biological Raw Material Standards	—	—	Confirmed
Production Method	Silkworm Cocoon	CHO-S Cells	CHO-S Cells
MCB/WCB/CAL Virus-Free Confirmation	—	Performed	Performed
Virus-Free Testing for Unrefined Bulk for Each Lot	—	—	Performed
Virus Removal Filtering in Manufacturing Process	—	—	Yes
Manufacturing Process Virus Clearance Test	—	—	Performed

Regenerative Medicine Product Material Eligibility Confirmation Has Been Obtained

iMatrix-221 MG

Please contact Matrixome directly for product details and prices.
※This product is not a drug or end-use product.
This product is a recombinant protein created based on the gene of the human laminin 221E8 fragment.
It has the same amino acid sequence as iMatrix-221.

	iMatrix-221	iMatrix-221MG
Product Grade	Research Use Only	Clinical Application
Material Eligibility for Products for Regenerative Medicine	—	Acquired
Production Method	CHO-S Cells	CHO-S Cells
MCB/WCB/CAL Virus-Free Confirmation	Performed	Performed
Virus-Free Testing for Unrefined Bulk for Each Lot	—	Performed
Virus Removal Filtering in Manufacturing Process	—	Yes
Manufacturing Process Virus Clearance Test	—	Performed

Laminin and Integrin Interactions

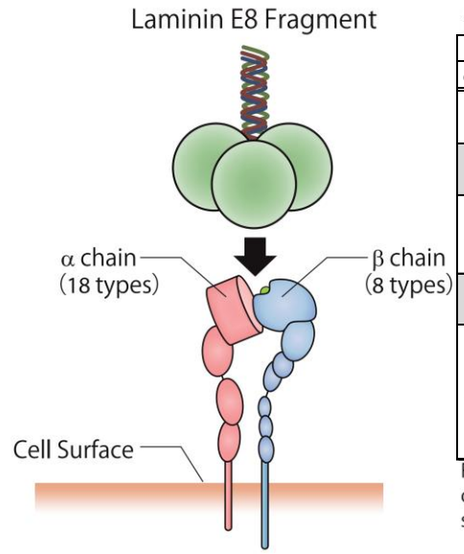


Table. Binding specificity of integrins with fragments of laminin E8 region

Laminin E8 Region		Integrin	
α	Compatible Products	α,β	Cell Expression
1	iMatrix-111	α6β1 α7X2β1	Liver Cells
2	iMatrix-221 iMatrix-221MG	α7X2β1	Cardiomyocytes Skeleral Muscle Cells
3	iMatrix-332	α3β1 α6β1 α6β4	Skin Corneal Epithelial Cells
4	iMatrix-411	α3β1 α6β1	Vascular Endothlial Cells
5	iMatrix-511 iMatrix-511silk iMatrix-511MG	α3β1 α6β1 α6β4	Pluripotent Stem Caell Inner Call Mass Nervr Cells Retinal Plgment Cells Corneal Epithelial Cells

Fig. Integrin is a heterodimer protein consisting of α and β chains, which is expressed on the surface of cells and specifically binds to the laminin protein.

iMatrix™ Products Available Globally

Our RUO iMatrix™ products are available globally via numerous distributors located all around the world. The products are sold exclusively via these distributors. To find out more please visit our website or scan the QR code below.
Our Clinical Grade products are sold directly through Matrixome. To learn more please contact us directly.

※Scan the QR code
for a list of distributors

iMatrix-series

Matrixome web site

What is Matrixome?

Matrix + ome

Extracellular matrix -ome

Matrxome comes to represent the study of the extraculler matrix by combing the word "matrix" to represent the ECM and the suffix "-ome" meaning part of the whole.

Company Profile (As of April 2022)

Company Name	MATRIXOME, Inc.	President and CEO	Takuji Yamamoto
Established	2015.12. 3	Capital	¥141,500,000 JPY
Headquarters	3-2 Yamadaoka, Suita, Osaka 565-0871 Japan Institute for Protein Research, Osaka University		
Shareholderds	Kiyotoshi Sekiguchi Nippi Co., Ltd. Osaka University Venture Capital Co., Ltd. SMBC Venture Capital Co., Ltd.		
Business Operations	Matrixome Inc. contributes to the realization and development of regenerative medicine by connecting the research of Osaka University and the business world, and utilizing our R&D capabilities for rurther research on the matrixome.		
Website	https://matrixome.co.jp		
Inquiry	https://matrixome.co.jp/en/contact Read the QR code. ➡		