

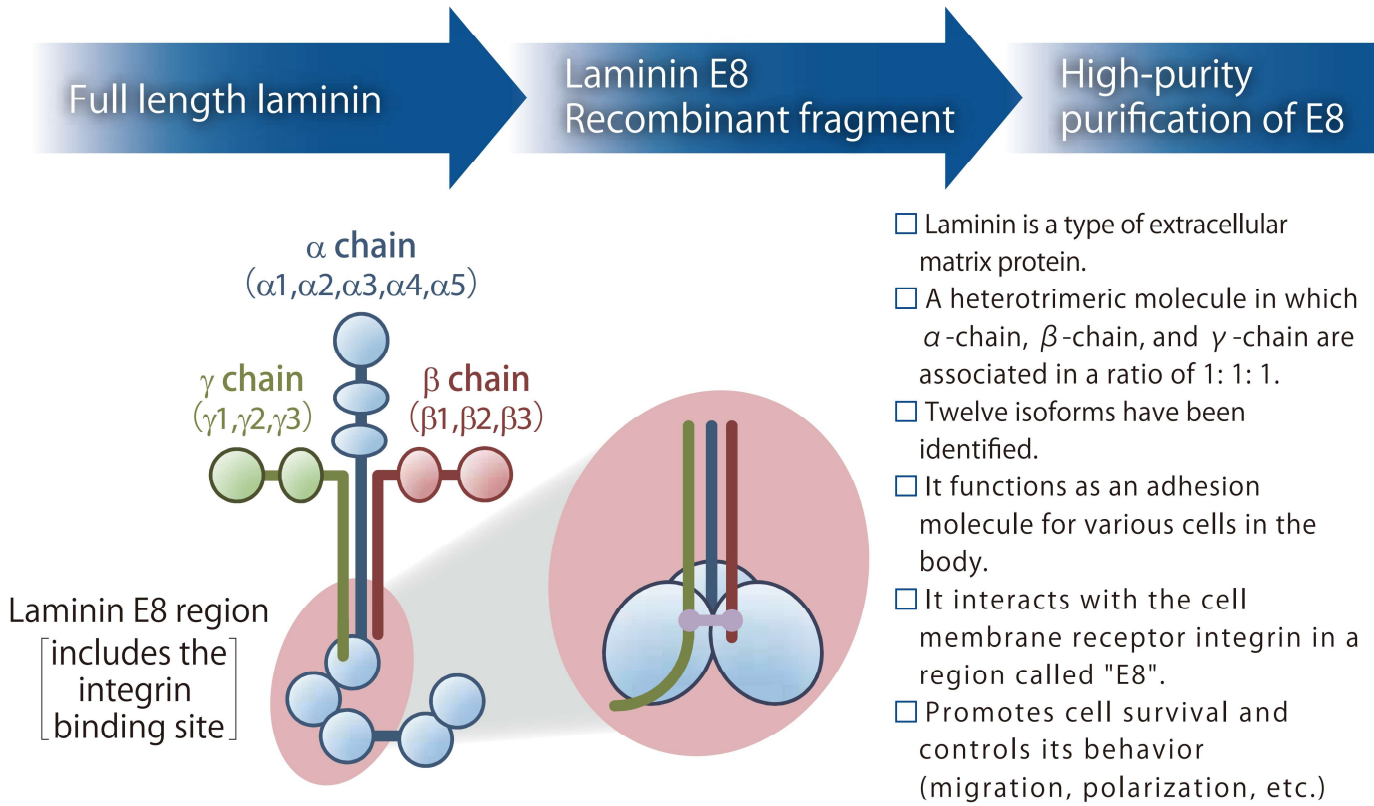


iMatrix

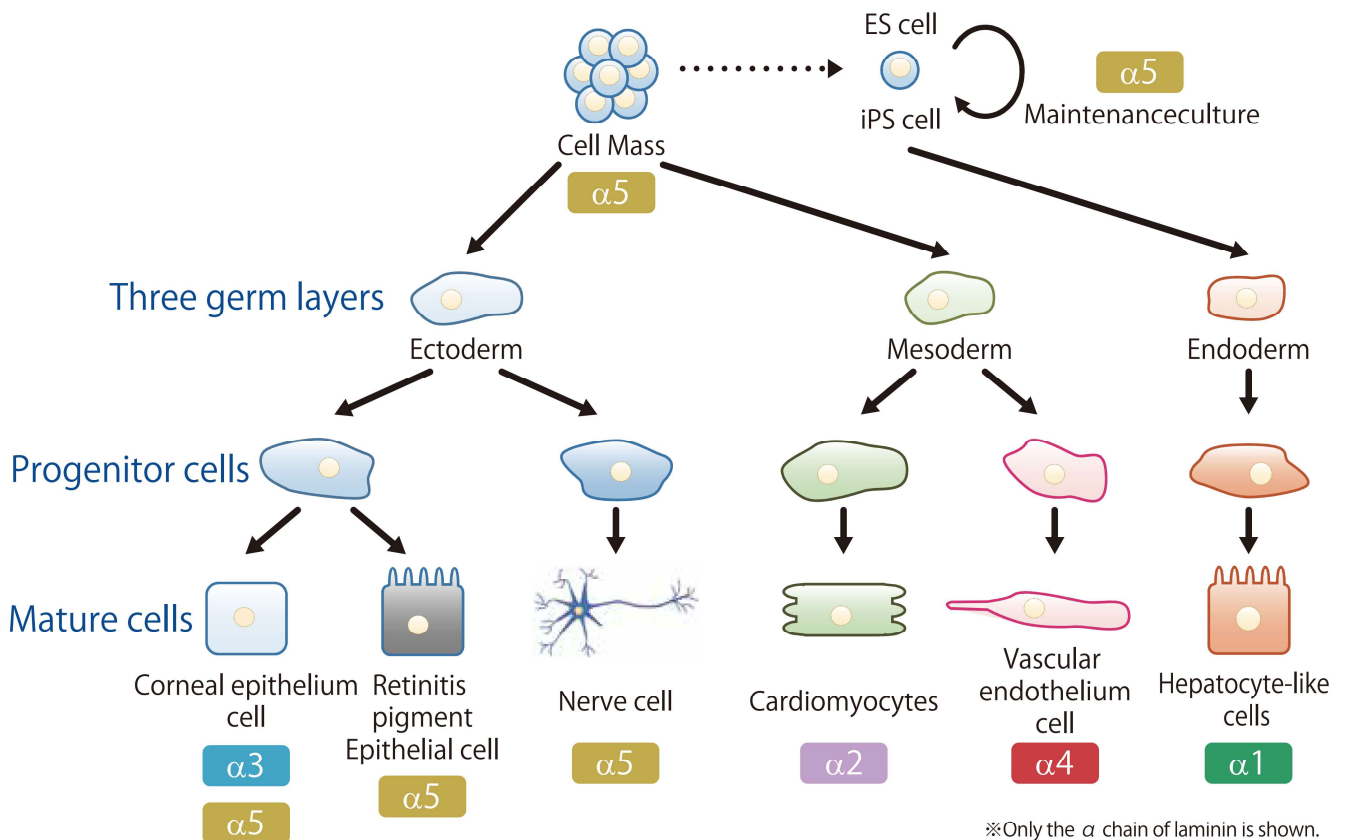
PRODUCTS CATALOG

MATRIXOME

Laminin is a cell adhesion molecule



Combination of laminin and cells in vivo



Cell Culture *iMatrix-series*

iMatrix-511

[$\alpha 5, \beta 1, \gamma 1$]

$\alpha 5$



iMatrix-511 silk



iMatrix-411

[$\alpha 4, \beta 1, \gamma 1$]

$\alpha 4$



iMatrix-332

[$\alpha 3, \beta 3, \gamma 2$]

$\alpha 3$



iMatrix-221

[$\alpha 2, \beta 2, \gamma 1$]

$\alpha 2$



iMatrix-111

[$\alpha 1, \beta 1, \gamma 1$]

$\alpha 1$



- ← 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



USE Maintenance and expansion culture of pluripotent stem cells

iMatrix-511 silk

Laminin-511 E8 Fragment
High-purity product



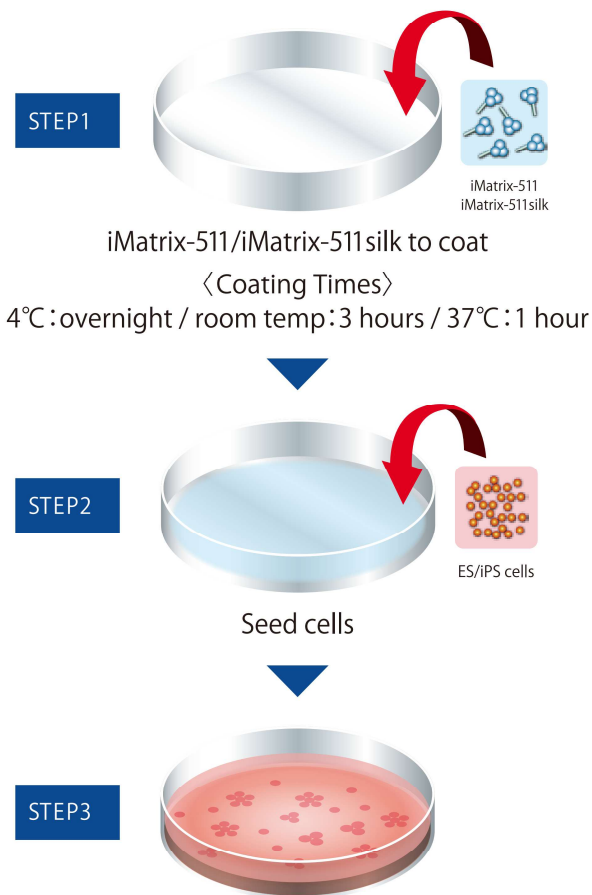
Same performance of Matrix-511 at a lower cost

Methods for culturing ES/iPS cells

New culture method, no coating required

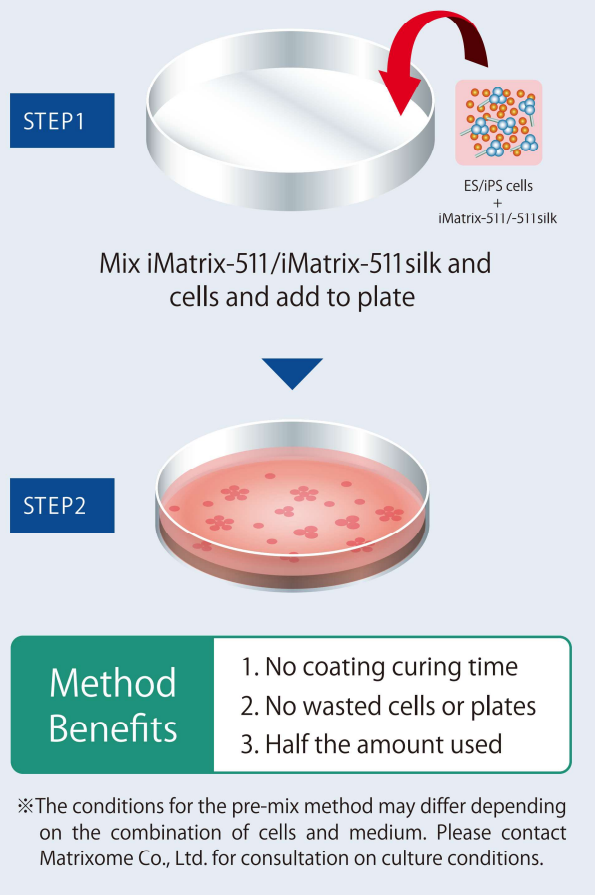
Products
iMatrix-511 • iMatrix-511silk

Coating Method | iMatrix-511/iMatrix-511silk concentration:
0.5 μg/cm²



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

Pre-mix Method | iMatrix-511/iMatrix-511silk concentration:
0.25 μg/cm²



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

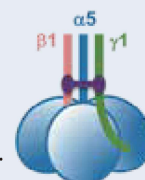
Reference: Miyazaki et al. *Sci Rep.* 7, 41165, (2017)

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

How to Use:

STEP 1 Dilute iMatrix-511 with PBS (-) and coat the culture vessel at $\approx 0.5\mu\text{g}/\text{cm}^2$
 ※The optimum coating concentration depends on the cell type and the medium used.

STEP 2 After coating, remove the iMatrix-511 solution & quickly seed the cells without drying.



Laminin511E8
Fragment

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

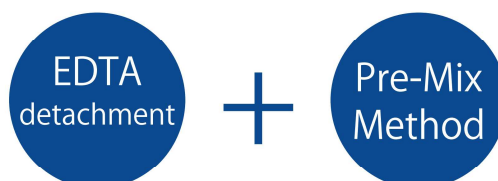
A new cell detachment method that doesn't require a scraper or enzymes

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°C 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.



Makes efficient
and low cost
cell culture
possible!

iMatrix-411

Laminin-411 E8 Fragment
High-purity product



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.

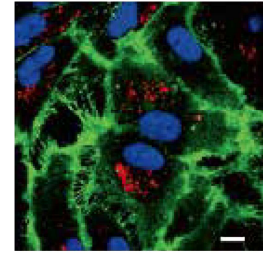


Fig. Vascular endothelial cells derived from ES cells [KhES-1]

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

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

Catalog #	Product Name	Product Sizes	Product Grade
892 041	iMatrix-411	350 μ g:175 μ g \times 2pcs.	RUO
892 042		1,050 μ g:175 μ g \times 6pcs.	RUO

iMatrix-332

Laminin-332 E8 Fragment
High-purity product



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.

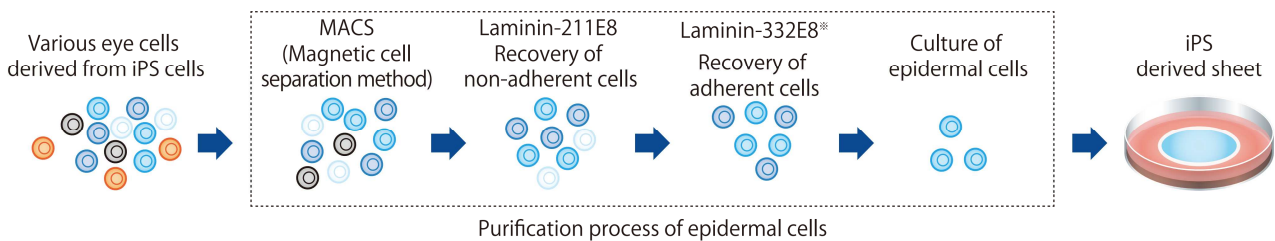


Fig. How to purify only corneal epithelial cells from various iPS cell-derived eye cells

Catalog #	Product Name	Product Size	Product Grade
892 031	iMatrix-332	350 μ g:175 μ g \times 2pcs.	RUO
892 032		1,050 μ g:175 μ g \times 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



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 $\alpha 7\text{X}2\beta 1$ 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	350 μg :175 μg × 2pcs.	RUO
892 062		1,050 μg :175 μg × 6pcs.	RUO

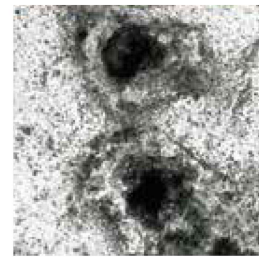


Fig. iPSC-derived cardiomyocytes cultured on iMatrix-221 ※Scan the QR code for a video

iMatrix-111

Laminin-111 E8 Fragment
High-purity product



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 $\alpha 7\text{X}2\beta 1$ and $\alpha 6\beta 1$ proteins, and is thought to be involved in the maintenance of liver tissue function.

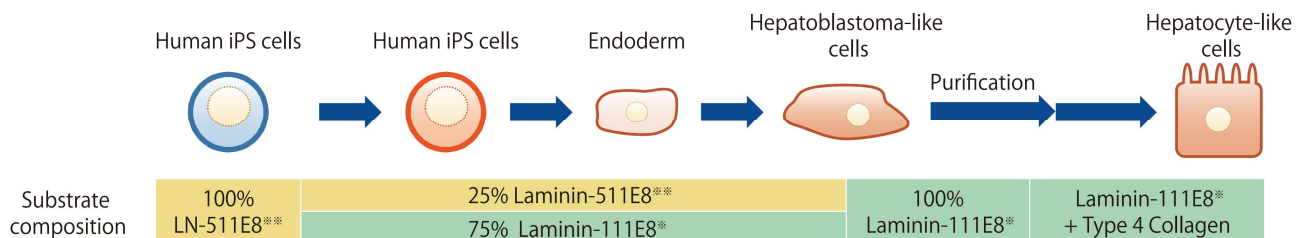


Fig. How to efficiently induce human iPS cells to hepatoblast-like cells and hepatocyte-like cells

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

Regenerative Medicine Product Material Eligibility Confirmation Has Been Obtained

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	Research Use Only	Research Use Only	Clinical Application
Material Eligibility for Products for Regenerative Medicine	—	—	Acquired
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

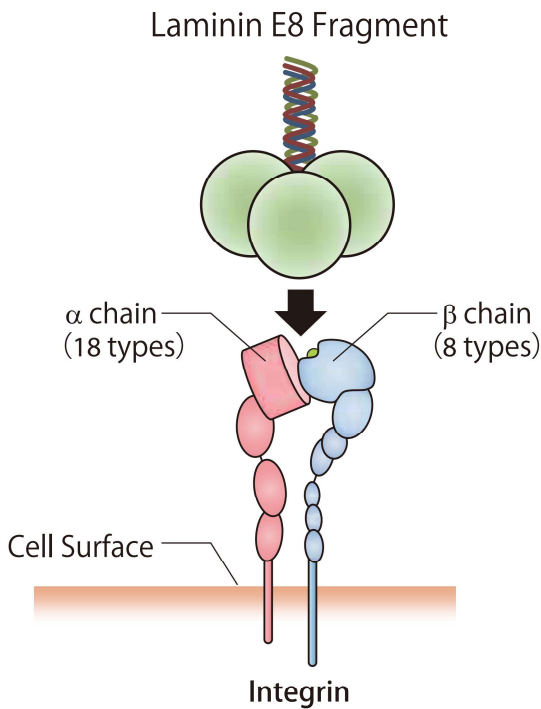


Table. Binding specificity of integrins with fragments of laminin E8 region

Laminin E8 Region		Integrin	
α	Compatible Products	α, β	Cell Expression
1	iMatrix-111	$\alpha6\beta1$ $\alpha7X2\beta1$	Hepatocyte-like cells
2	iMatrix-221 iMatrix-221MG	$\alpha7X2\beta1$	Cardiomyocytes Skeletal Muscle Cells
3	iMatrix-332	$\alpha3\beta1$ $\alpha6\beta4$	Skin Corneal Epithelial Cells
4	iMatrix-411	$\alpha3\beta1$ $\alpha6\beta1$	Vascular Endothelial Cells
5	iMatrix-511 iMatrix-511silk iMatrix-511MG	$\alpha3\beta1$ $\alpha6\beta1$ $\alpha6\beta4$	Pluripotent Stem Cells Inner Cell Mass Nerve Cells Retinal Pigment 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?

M a t r i x + o m e

Extracellular matrix

-ome

Matrixome comes to represent the study of the extracellular matrix by combining the word “matrix” to represent the ECM and the suffix “-ome” meaning part of the whole.

Company Profile (As of September 2024)

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		
Shareholders	Kiyotoshi Sekiguchi Nippi Co., Ltd. Osaka University Venture Capital Co., Ltd. SMBC Venture Capital Co., Ltd.		
Business Operations	Matrixome, Inc. contributes to the realization & development of regenerative medicine by bridging the research of Osaka University (Institute for Protein Research, Division for Matrixome Research and Application) with the business world, leveraging our R&D expertise to further explore & enhance matrixome research.		
Website	https://matrixome.co.jp		
Inquiry	https://matrixome.co.jp/en/contact		