KOKEN

Collagen for Cell Culture

AteloCell®

The AteloCell® series offers solutions, sponges and membrane products made from highly purified collagen.
These products are perfectly suited to cell culture, from daily cell maintenance to fundamental research in regenerative medicine.

Cosmo Bio Co., Ltd.

Collagen for Cell Culture
AteloCell®

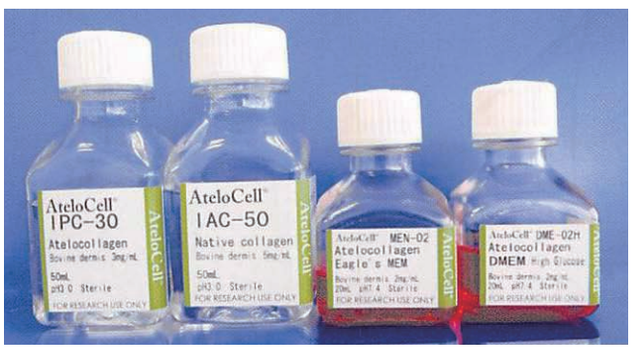
Atelocollagen and Native Collagen Acidic Solutions
Atelocollagen Neutral Solutions

Background

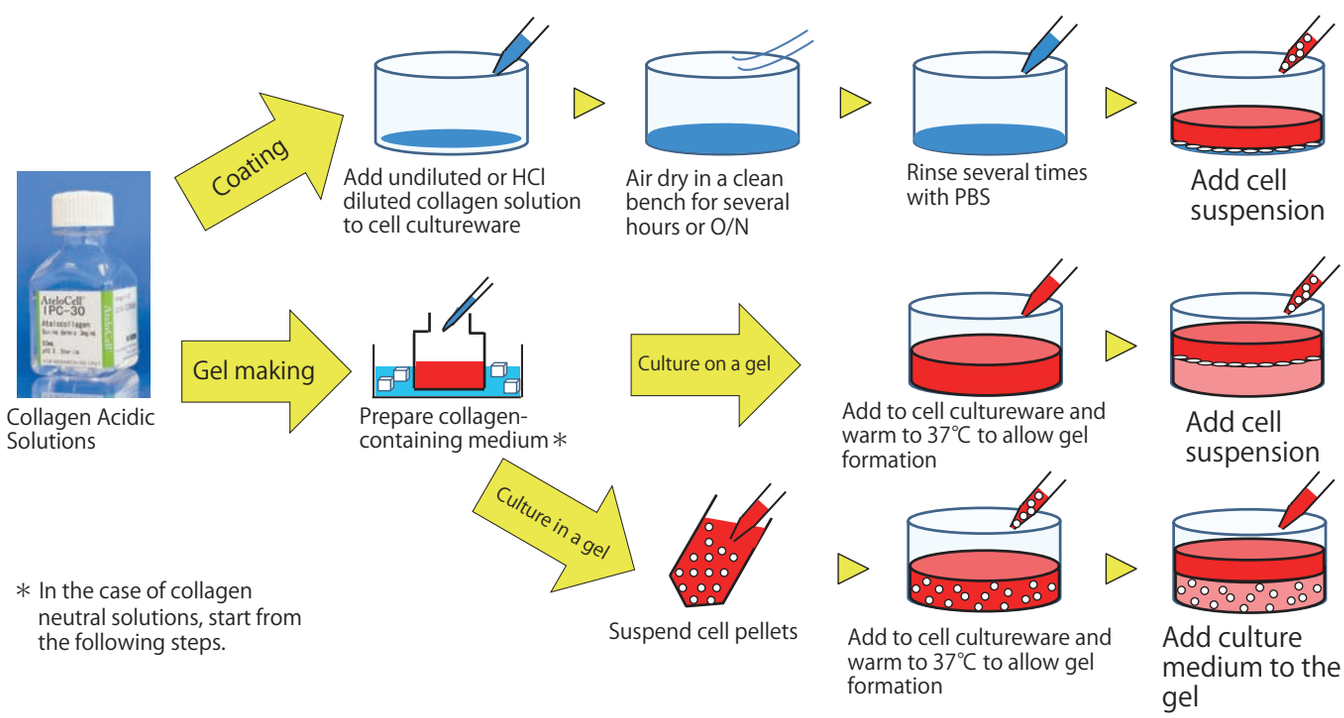
These products are prepared with highly purified type I collagen derived from bovine dermis. The low pH of the Acid Solutions enables long term refrigerated storage. Neutral Solution products are pH neutral, come premixed in several commonly used culture media, and gelate at 37°C.
In contrast to cell-derived soluble basement membrane preparations, Collagen Solutions are free from bioactive substances, nucreic acids, MMP, etc. allowing experimental results to be evaluated more clearly.

Applications

- Collagen coating for cell cultureware
- Cell culture in a collagen gel
- Cell culture on a collagen gel

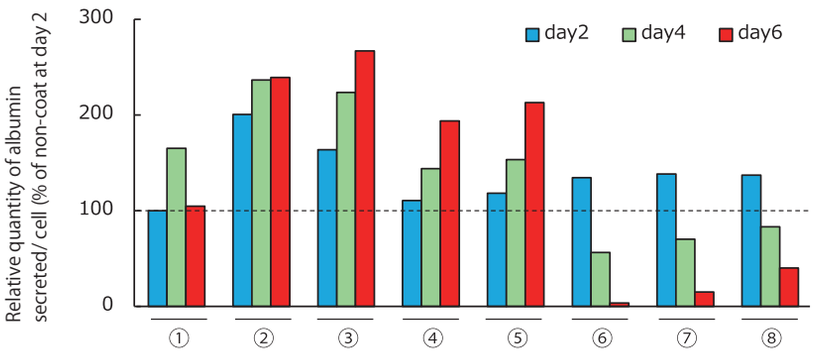


How to use Collagen Solutions



＊ In the case of collagen neutral solutions, start from the following steps.

Example 1 Comparison of albumin production of rat primary hepatocyte by various culture methods

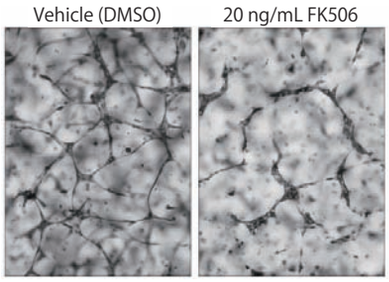


① uncoated
② atelocollagen gel
③ native collagen gel
④ atelocollagen coated plate
⑤ native collagen coated plate
⑥ Company A's coated plate
⑦ Company B's coated plate
⑧ gelatin coated plate

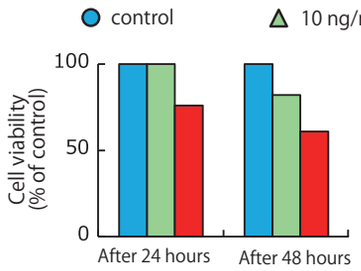
Higher albumin production was maintained when cells were cultured on Atelocollagen and Native collagen gels (② , ③) compared to other culture methods tested. In addition, results with both pre-coated plates (⑥ , ⑦) were similar to gelatin coated plates (⑧), suggesting that collagen degrades during storage.

Example 2 Three-dimensional culture of blood vessel endothelium using the collagen gel

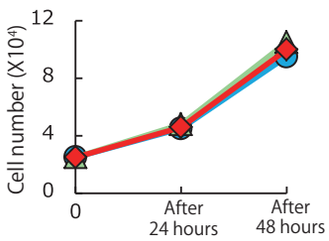
Eguchi R, Hyogo College of Medicine Department of Environmental and Preventive Medicine



Lume structures form in collagen gel HUVEC cultures within 48 hours following FK506 treatment.



FK506 addition to HUVEC in 3D culture

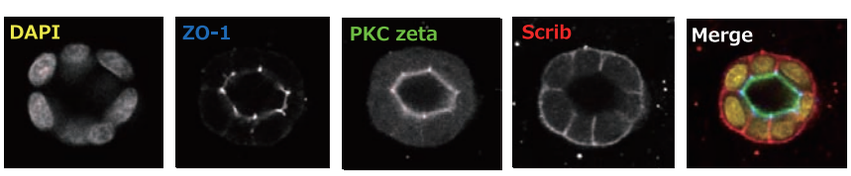


FK506 addition to HUVEC in monolayer culture

An immunosuppressant FK506 is known to be involved in endothelial dysfunction inducing thrombotic microangiopathy after hematopoietic stem cell transplantation. In order to clarify the mechanism of the event, human umbilical vein endothelial cells (HUVEC) in collagen gel 3D culture were treated with FK506. In 3D culture, FK506 induced cell death and tube structure breakdown in a time- and concentration-dependent manner, but showed little effect on cells in monolayer culture. These results suggest 3D culture in collagen gel is useful to investigate *in vivo* phenomenon *in vitro* (Ref.6).

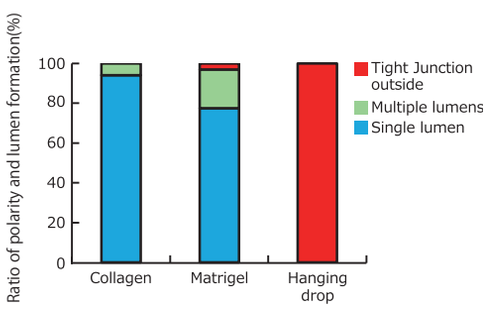
Example 3 Cell polarity formation of renal epithelial cells using collagen gel

Yonemura S, RIKEN Center for Life Science Technologies Ultrastructural Research Team



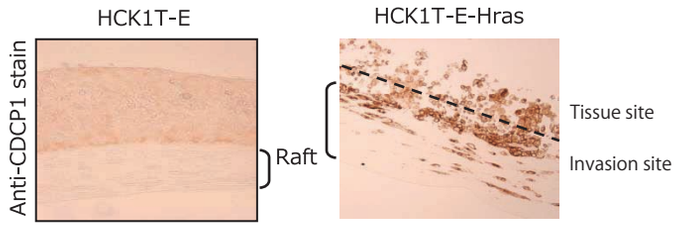
Images of MDCK II cells cultured in collagen gel for three days

Localization of ZO-1 (tight junction) and PKC Zeta (apical membrane) markers were observed inside spheroids of Madin-Darby canine kidney (MDCK) II cells cultured in collagen gel. On the other hand, localization of Scrib, a basal marker, was observed at the outer surface of spheroids. Thus, collagen gel 3D culture is effective for the formation of apical-basal polarity. Furthermore, collagen gel cultures showed a higher rate of single lumen formation compared to Matrigel and hanging drop culture (Ref. 4).

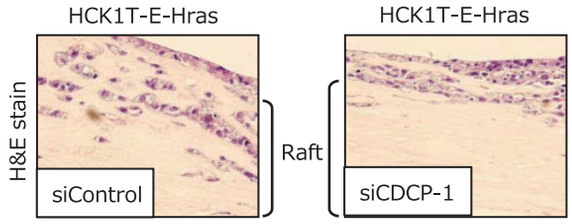


Example 4 Invasion assay of cervical cancer cells in collagen gel

Uekita T, *et al.* National Defense Academy Division of Genome Biology



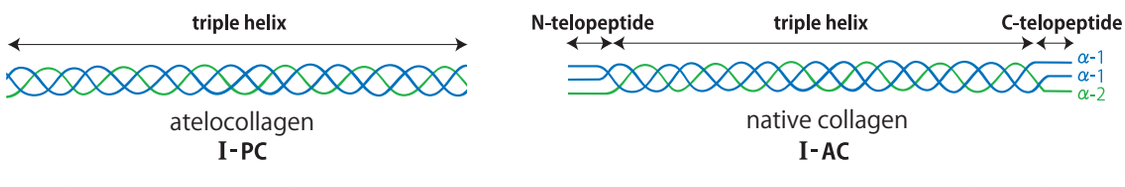
Immunohistochemical images of HCK cells cultured on Raft for two weeks



H&E stained images of siRNA transfected cells cultured on Raft for four weeks

Human cervical cancer cells (HCK1T-E cells) and active Ras transfected HCK1T-E cells (HCK1T-E-Hras cells) were seeded on collagen gel containing human fibroblast cells (Raft) to evaluate association between CDCP1 expression and cancer cell invasion. As a result, invasion of HCK1t-E-Hras cells into Raft was observed and remarkable expression of CDCP1 was detected in the invasion site. In addition, invasion into Raft was inhibited by CDCP1 siRNA transfection. Therefore, it was shown that the collagen gel was useful as a cancer cell invasion model to the submucosa (Ref. 3).

Molecular Structure of Atelocollagen and Native Collagen



Atelocollagen (pepsin treated native collagen, I-PC) lacks telopeptide and has low antigenicity while retaining key physical properties of native collagen (I-AC). On the other hand, gels produced from native collagen are stronger and more transparent.

Comparison list of the collagen solution products

◎ Suitable ○ OK △ Slightly unsuitable

Product	Telopeptide	Culture mediua premix	Coating	Gel making	*in vivo* experiment	Transparency and intensity of the gel
Atelocollagen Acidic Solution I-PC	No	No	◎	◎	◎	I-AC>I-PC=Neutral solution＊ ＊Varies slightly with media components
Native Collagen Acidic Solution I-AC	Yes	No	◎	◎	△	
Atelocollagen Neutral Solution	No	Yes	○	◎	◎	

References

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Inspiration for Life Science

Atelocollagen and Native Collagen Acidic Solutions

Background

Highly purified collagen solution (pH 3.0) for cell culture. Suitable for cell cultureware coating and preparing collagen gel.

Atelocollagen (IPC): Pepsin-solubilized type I collagen solution
Native collagen (IAC): Acid-solubilized type I collagen solution

Applications

- Collagen coating for cell cultureware
- Cell culture in a collagen gel
- Cell culture on a collagen gel

Features

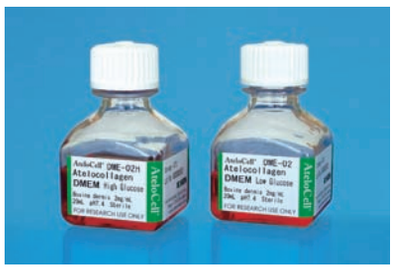
Atelocollagen and Native collagen gelates when neutralized and placed under physiological condition.

Description	Cat. No.	Quantity	Storage
Atelocollagen, Bovine Dermis, 3mg/mL (sterile)	KOU-IPC-30	50 mL/btl	2-10℃
Atelocollagen, Bovine Dermis, 5mg/mL (sterile)	KOU-IPC-50	50 mL/btl	2-10℃
Native Collagen, Bovine Dermis, 3mg/mL (sterile)	KOU-IAC-30	50 mL/btl	2-10℃
Native Collagen, Bovine Dermis, 5mg/mL (sterile)	KOU-IAC-50	50 mL/btl	2-10℃

Atelocollagen Neutral Solutions

Background

Atelocollagen neutral solution (pH 7.4) containing highly purified atelocollagen derived from bovine dermis.



Applications

- Cell culture in a collagen gel
- Cell culture on a collagen gel

Features

- Solutions gelate at 37°C
- Ready-to-use: atelocollagen is premixed with medium.

Description	Cat. No.	Quantity	Storage
Atelocollagen, Eagle's MEM (sterile)	KOU-MEN-02	20 mL/btl	-20℃
Atelocollagen, DMEM Low Glucose (sterile)	KOU-DME-02	20 mL/btl	-20℃
Atelocollagen, DMEM High Glucose (sterile)	KOU-DME-02H	20 mL/btl	-20℃
Atelocollagen RPMI 1640 (sterile)	KOU-RPM-02	20 mL/btl	-20℃

Collagen Sponge For 35mm Culture Dish

Background

KOU-CS-35 is a porous but not "honeycomb" collagen sponge. This sponge is prepared from an insoluble type I collagen derived from bovine Achilles tendon.

Applications

- Cell culture on a sponge

Features

- Culturing of cells and tissue sections on a sponge.

Description	Cat. No.	Quantity	Storage
Collagen Sponge For 35mm Culture Dish (sterile)	KOU-CS-35	5 pcs/box	room temperature

Atelocollagen Sponge, 90 x 80 x 5mm

Background

KOU-CLS-01 is a porous but not “honeycomb” atelocollagen sponge sheet made of highly purified type I atelocollagen derived from bovine dermis. This sponge will deform once it absorbs water unless cross-link is performed.

Description	Cat. No.	Quantity	Storage
Atelocollagen Sponge	KOU-CLS-01	1 pc/bag	2-10℃

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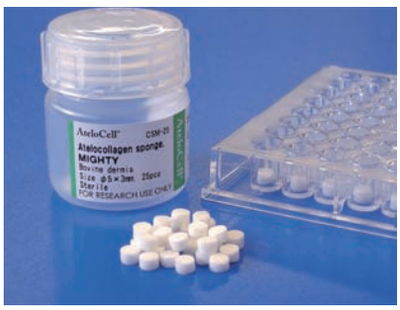
Atelocollagen Sponge, MIGHTY

Background

Atelocollagen sponge MIGHTY consists primarily of type I atelocollagen derived from bovine dermis and is strong enough to withstand compressive loading of up to 40 kPa. Culturing cells in MIGHTY under cyclic compressive loading provides more *in vivo*-like environment to evaluate cell function. MIGHTY is also applicable as a scaffold for conventional 3D cell culture.

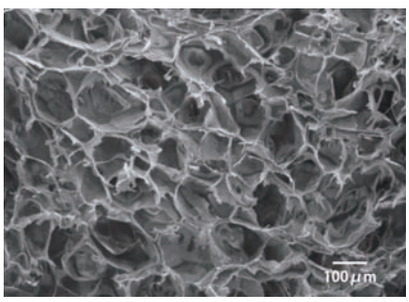


Applications

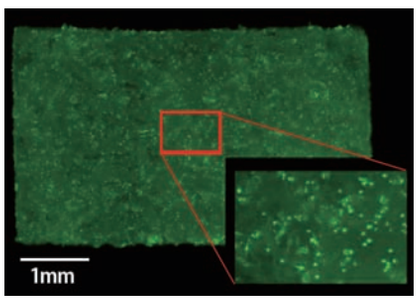
- Cell culture under mechanical stimuli
- Conventional 3D cell culture
- Scaffold for regenerative medicine research

Features

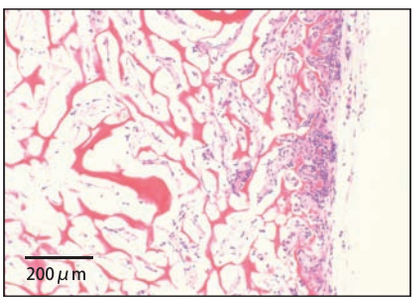
- Retains structural rigidity during repeated compression loading of 40 kPa.
- Sized for 96-well plates.
- Made of highly purified type I atelocollagen derived from bovine dermis.



SEM image of cross section through MIGHTY

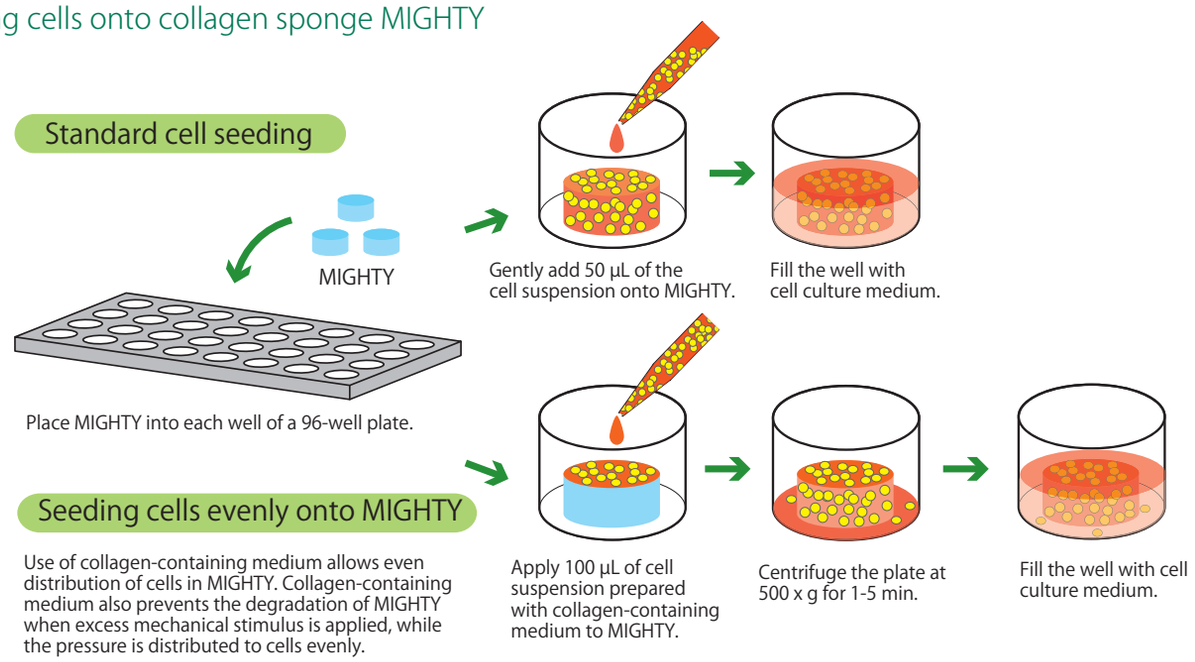


Cross-sectional image of MIGHTY seeded with Mouse Fibroblast cell (NIH3T3, fluorescent microscopy)

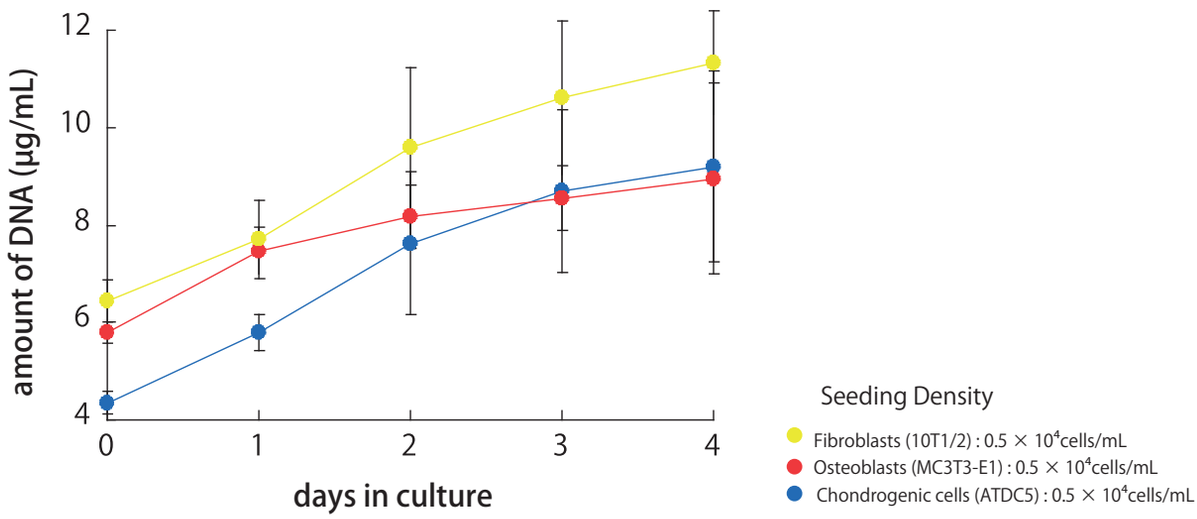


Sectional view of MIGHTY 1 month after transplantation under the skin of a mouse. Penetration of the cells and maintenance of the MIGHTY sponge structure were confirmed.

Seeding cells onto collagen sponge MIGHTY



Example 1 Cell proliferation using MIGHTY



Example 2 Compressive loading culture experiment (Shimomura K, *et al.* Osaka University)

Human synovium derived cells were cultured on MIGHTY (Fig. 1). After 3 days of culture, cyclic compressive loading of 40 kPa was applied to the sponge for 1 hour and then expression levels of arthritis related genes PGE2, IL-6 and IL-8 were measured and found elevated. On the other hand, expression levels of proinflammatory cytokines, IL-1 β and TNF- α , were unchanged (data not shown), which suggests there might be another signal pathway regulating PGE2 expression. mRNA level of mPGES-1 (PGE2 synthase) were upregulated by mechanical stress and this upregulation was suppressed by COX-2 selective inhibitor in a dose-dependent manner (Fig. 2).

Fig. 1; MIGHTY seeded with cells

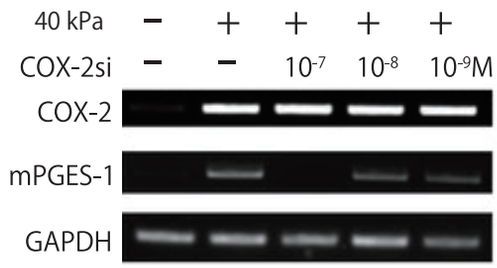
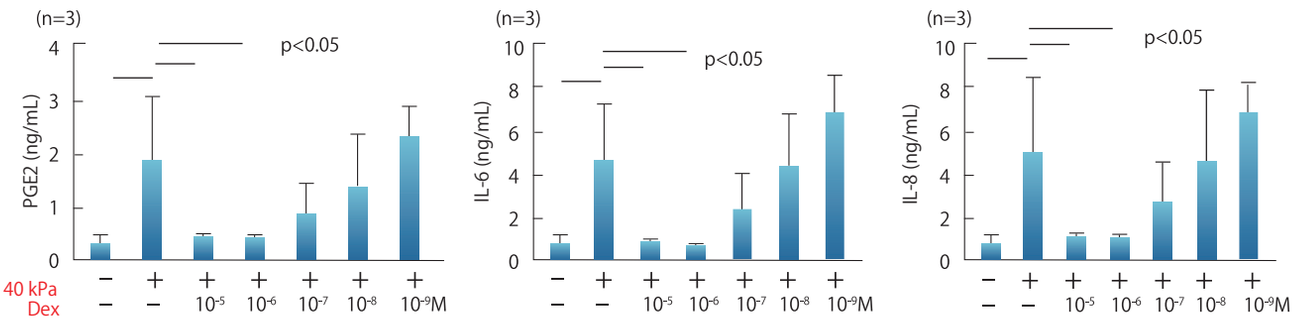


Fig. 2; mRNA expression levels after cyclic compressive loading with or without COX-2 selective inhibitor

With dexamethasone, up-regulated protein expression of PGE2, IL-6 and IL-8 were suppressed in a dose-dependent manner. These results show usefulness for MIGHTY in an *in vitro* arthritis model (Ref. 8).



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11. Akamine Y, *et al.* Prolonged matrix metalloproteinase-3 high expression after cyclic compressive load on human synovial cells in three-dimensional cultured tissue. (2012) *Int J Oral Maxillofac Surg.* **41**(7): 874-881.
12. Muroi Y, *et al.* Effects of Compressive Loading on Human Synovium-derived cells. (2007) *J Dent Res.* **86**(8): 786-791.

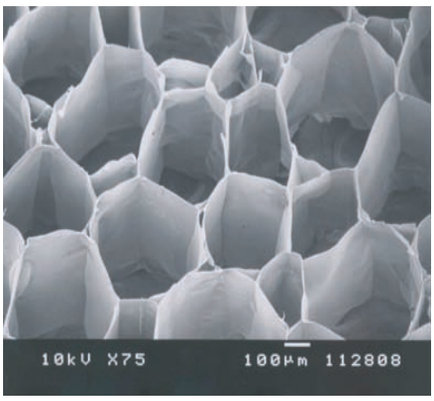
Description	Cat. No.	Quantity	Storage
Atelocollagen Sponge, MIGHTY 25 pcs (sterile)	KOU-CSM-25	25 pcs/btl	room temperature
Atelocollagen Sponge, MIGHTY 50 pcs (sterile)	KOU-CSM-50	50 pcs/btl	room temperature

Collagen for Cell Culture
AteloCell®

Atelocollagen Honeycomb Sponge and Honeycomb Disc 96

Background

Honeycomb Sponge and Honeycomb Disc 96 are made from type I atelocollagen and possess honeycomb-like pore structure with high pore density. This honeycomb structure enables easy supply of nutrients to cells and excretion of waste products from cells.



Applications

- 3D cell culture
- Scaffold for regenerative medicine research
- Sustained release of bioactive substances

Features

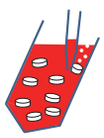
- Unidirectional pore structure facilitates cell migration and vascularization *in vivo*
- Cells can be easily harvested by collagenase treatment.

How to use

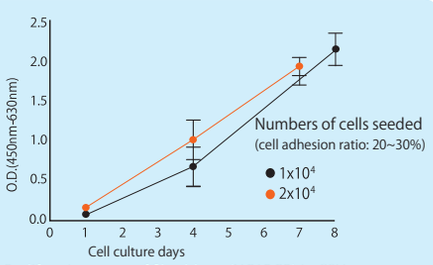

KOU-CSH-10


KOU-CSH-96

Remove air bubbles

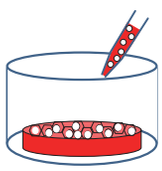


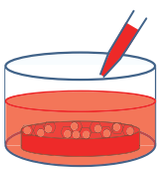
Compress or centrifugal defoamthe sponge in solution



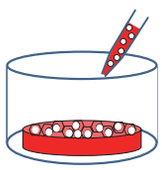
Proliferation assay of fibroblasts (NG1RGB) in CSH

3D culture


Add cell suspension

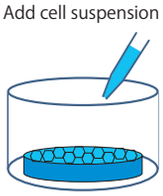

Add medium

Cell transplantation


Add cell suspension


Transplant to animal

Sustained release of bioactive substance

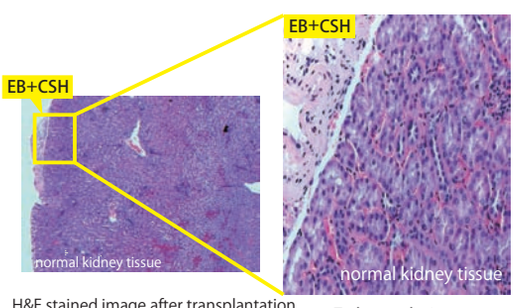

Add bioactive substance


Transplant to animal

Example 1 Suppression of teratoma formation by embryoid body (EB) following transplantation of EB on Honeycomb Sponge (CSH)
(Yamaki M, Harvard University, Stem Cell Regenerative Biology)


EB on Honeycomb Scaffold (EB+CSH) 7~12 weeks after transplanting


EB without Honeycomb Sponge 7~12 weeks after transplanting



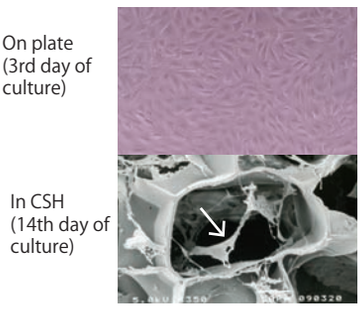
H&E stained image after transplantation of EB+CSH cultured for 7 days

Enlarged view

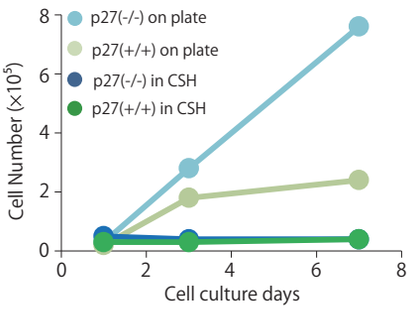
Mouse kidney at 12 weeks following transplantation of EB on CSH scaffold (EB+CSH) barely showed sign of teratoma formation while EB transplanted without CSH (EB alone) generated teratomas in all mice. Histologically, transplanted EB+CSH were indistinguishable from adjacent host renal tissue, suggesting spontaneous differentiation without specific induction.
Methods: Plate cultured mouse embryonic stem (ES) cells were trypsinized, filtered through nylon mesh, seeded into 96-well plates ($1x10^4$ cells/well), and cultured for 5 days to form embryoid bodies. When EB were mixed with CSH, They were rapidly and uniformly integrated into the CSH matrix. EB+CSH complex was then transplanted under renal capsule of 6-week-old mice (Ref. 7).

Example 2

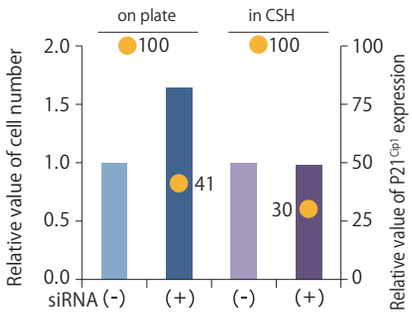
3D culture of vascular smooth muscle cells (SMCs) using CSH
(Ishii I, Graduate School of Pharmaceutical Sciences, Chiba University)



Images of cultured mouse SMCs by optical microscope and electron microscope



cell proliferation curve of p27(-/-) and p(+/+) SMCs cultured either on plate or in CSH

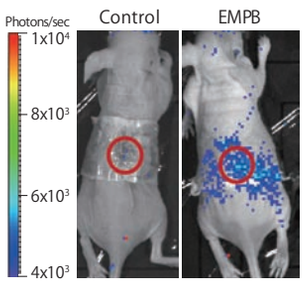


Administration of p21 $^{Cip\,1}$ siRNA to p27(-/-) SMCs cultured either on plate or in CSH

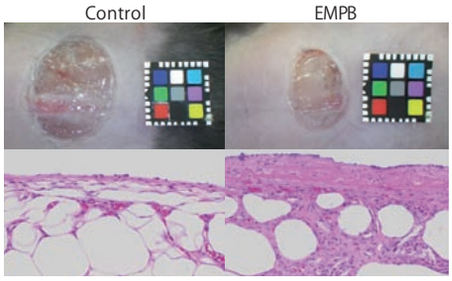
It has been reported that mouse SMCs cultured in CSH turn to differentiated state from dedifferentiated state and also the proliferation is suppressed (Ref. 6). In order to investigate the mechanism of proliferative inhibition, p27 deficient mouse derived SMCs and p21^{Cip1} siRNA were used but the effect on proliferation was observed only in SMCs cultured on plates. Although further research is required to clarify the mechanism, SMCs cultured in CSH can maintain similar features to *in vivo* aortic SMCs for more than one month and therefore it may be useful for regenerative medicine (Ref. 1).

Example 3

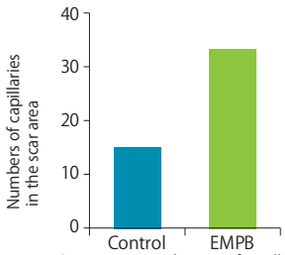
Administration of medical plant extract and cell migration using CSH
(Maeda A, Ph. D. Skin Regeneration, PIAS Collaborative Research, Osaka University)



Homing assay of luc-MSCs to wounds at day 6 after i.v.



Images of wound and H&E stained wound area 17 days after EMPB administration

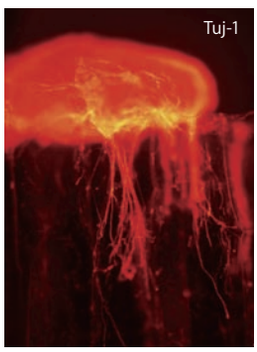


Quantitative evaluation of capillary number in the scar area

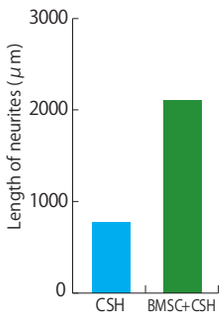
The ethanol extract from Mallotus philippinensis bark (EMPB) is impregnated to CSH and topically applied to the wound of mouse. Then, luciferase-expressing MSCs (Luc-MSCs) were intravenously injected. As a result, accumulation of Luc-MSCs at the wound area was promoted in EMPB treated group. Further evaluations at 17 days after EMPB administration to the wound area revealed that accelerated wound healing and increased numbers of capillaries and granulation tissue. These results suggests that CSH is useful for sustained release of bioactive substance (Ref. 5).

Example 4

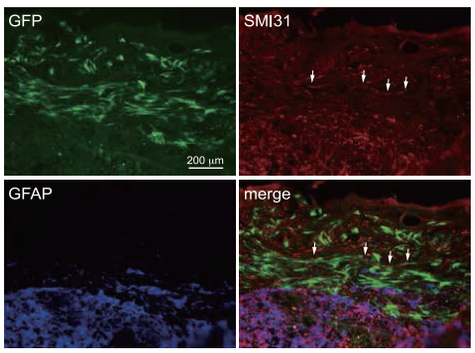
Implantation of bone marrow stem cells (BMSCs) into hemisected spinal cord using CSH
(Enomoto M, Department of Orthopaedic Surgery and Hyperbaric Medical Center, Tokyo Medical and Dental University)



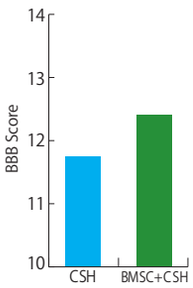
Fluorescence microscope image of DRG cultured for 10 days on BMSC+CSH



Neurite elongation evaluation of DRG cultured on CSH with or without BMSCs



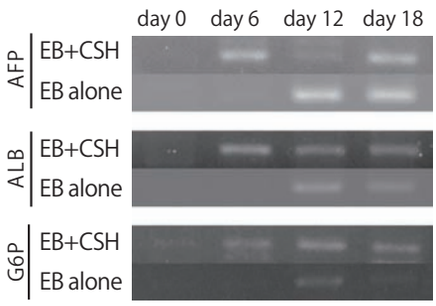
Fluorescence microscopy images of implantationsite at 4 weeks in BMSC+CSH group
(arrows: SMI31 positive fibers in GFAP negative area)



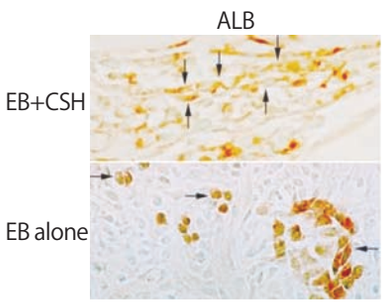
Motor function evaluation of hindlimb 4 weeks after transplantation

A previous report demonstrated that the pore structure of CSH enhances nerve regeneration (Ref. 9). In this research, a remarkable increase of neurite growth was observed when dorsal root ganglia (DRG)s were cultured on GEP-expressing BMSCs contained CSH (BMSCs+CSH) for ten days compared to DRGs cultured on CSH alone. Improved locomotor and sensory function was also observed four weeks after implantation of BMSC+CSH into hemisected spinal cord (Ref. 4). [Tuj-1: A maker for neuron; SMI31: A marker for neurofilament; GFAP: a marker for astrocyte; BBB score: an evaluation method for hindlimb motor function]

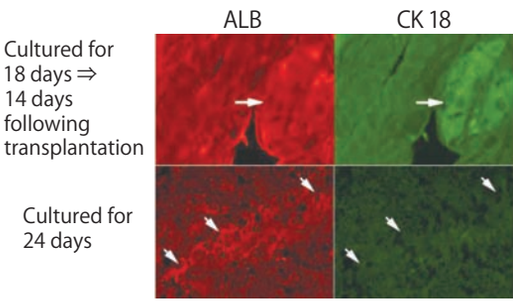
Example 5 Induction of hepatic differentiation of ES cells and transplantation using CSH



Expression of each marker by RT-PCR



Immunostaining image of day 18
(Arrows：ALB positive cells)



Images of EB+CSH by fluorescence microscope
(Arrows: ALB positive cells)

Embryoid bodies (EBs) were formed from ES cells and then inserted into CSH. EBs both with and without CSH were cultured to differentiate and induce hepatic histogenesis. The EB-derived cells expressed liver-specific genes, and albumin-positive cells formed cordlike structures that were not present in those without CSH. The scaffold including EB-derived hepatocyte-like cells was transplanted into the median lobe of mice. After 14 days, cells positive for both albumin and cytokeratin 18 appeared in the transplant and formed clustered aggregates. (Ref. 10) [AFP: Marker for inicial livers hepatic cells; ALB: Marker for inicial to matured hepatic cells; G6P and CK18: Marker for matured hepatic cells]

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Description	Cat. No.	Quantity	Storage
Atelocollagen, Honeycomb Sponge Size: about 3x3x2 mm/sponge Total surface area: about 2,000 cm^2/g Weight per volume: 12-13 mg/mL Sterile, Pore size 200-400 µm	KOU-CSH-10	100 mg/btl	room temperature
Atelocollagen, Honeycomb Disc 96 Size : radius = 6; height = 2 mm Sterile, Pore size 200-400 µm	KOU-CSH-96	25 pcs/btl	room temperature

COSMO BIO CO., LTD.
Inspiration for Life Science

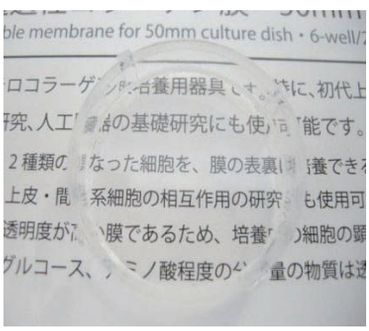
Atelocollagen, Permeable Membranes

Background

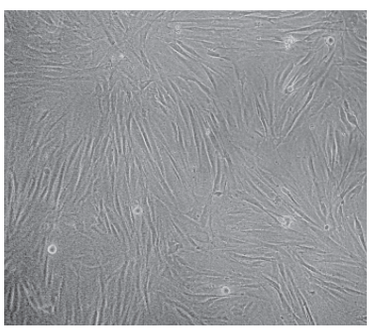
Permeable collagen membranes are made from highly purified bovine dermal type I atelocollagen for single and double layer cell culture applications. These membranes are particularly suitable for studying cell-cell interactions between two different cell types seeded on opposite sides of the same membrane. Small molecules pass freely through the membrane while cells cannot. They are also useful for remodeling epithelial polarity. When epithelial cells are cultured on the membrane, cells will absorb nutrients and excrete metabolic waste through the membrane.

Applications

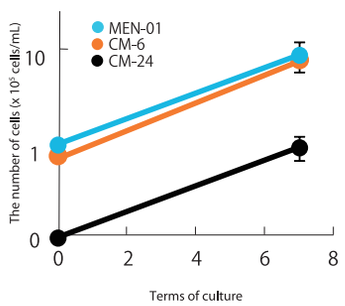
in vitro experiments: cell-cell interaction studies; remodeling of epithelial polarity; primary cell culture
in vivo experiment: cell transplantation



High transparency collagen membrane

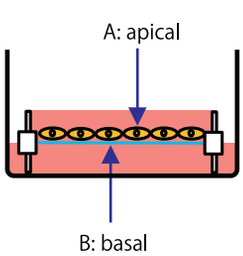


Surface of permeable collagen membrane at 4 days culture of human fibroblast (phase contrast microscope)

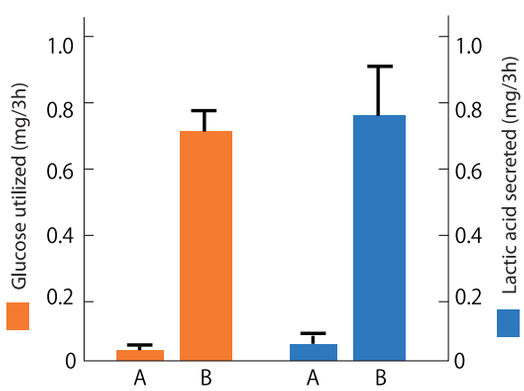


Proliferation of NB1RGB cells on permeable collagen membrane.

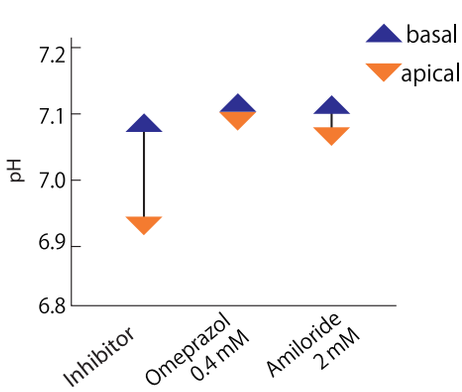
Example 1 Remodeling epithelial polarity using the permeable collagen membrane
(Yoshizato K, *et al. J Cell Sci.* **91**(Pt4): 491-499)



A schematic diagram of primary rat epidermal cell culture



Epithelial cell polarity in glucose uptake and lactate release

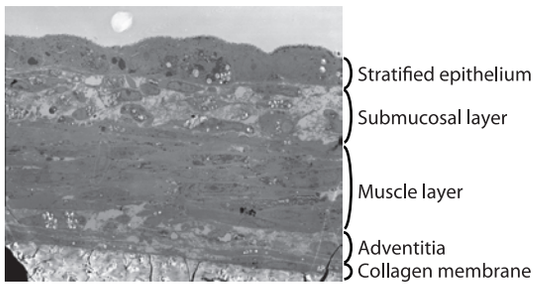


Difference in pH between apical and basal compartments during culture

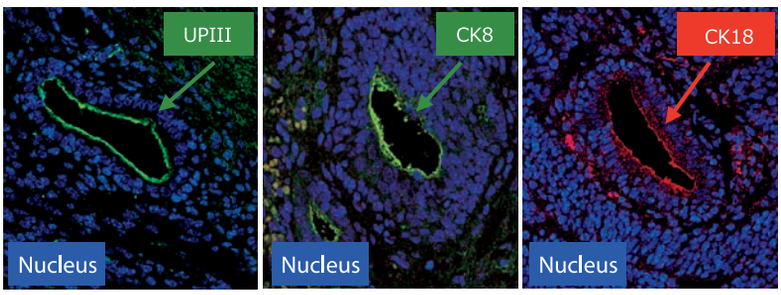
Glucose consumption and lactic acid excretion in the basal compartment was significantly higher than that of the apical compartment. On the other hand, pH reduction in the apical compartment was abolished by membrane transporter inhibitor.

Example 2

Induction of urinary tract differentiation from embryo body (EB) and transplantation with the permeable collagen membrane. (Kinebuchi Y, *et al*., Shinonoi General Hospital/Shinshu Univrsity, Japan.)



Electron microscope image 28 days after the culture

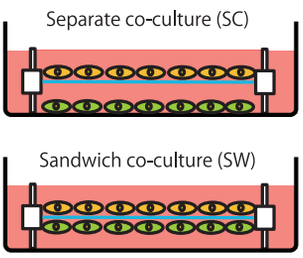


Retrieved graft on day 28 post-transplantation (immunostaining)

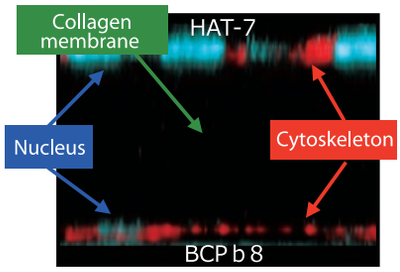
Following 28 days culture of mouse EB on a collagen membrane using KSFM medium and 3T3 cell culture supernatant, a four layer structure was formed. A duct-like structure was observed when cultured tissue attached to collagen membrane was transplanted into mice. Expression of UPIII (a marker of urothelium) and CK8 and CK18 (markers of urinary bladder) were also observed. These results suggest that collagen membranes are useful for the formation of tissue like structures and may also be useful following transplantation.

Example 3

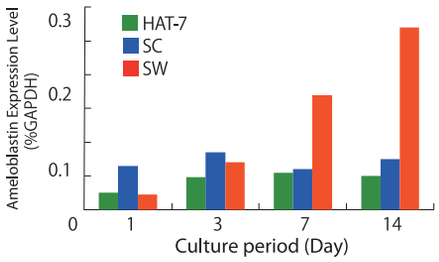
Induction of ameloblast differentiation using the permeable collagen membrane (Taniguchi A, *et al., Natl. Inst.* for Material Science, Japan.)



Schematic diagram of Co-culture



Sectional view 4 days after SW culture

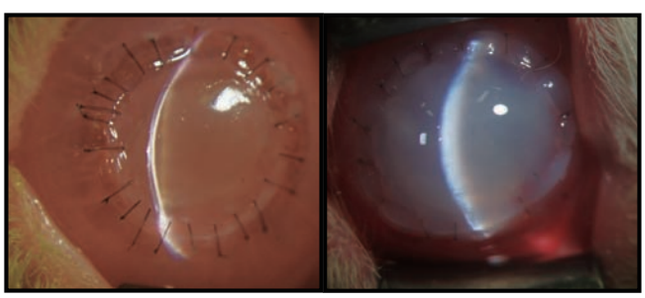


Ameloblastin expression after the Co-culture

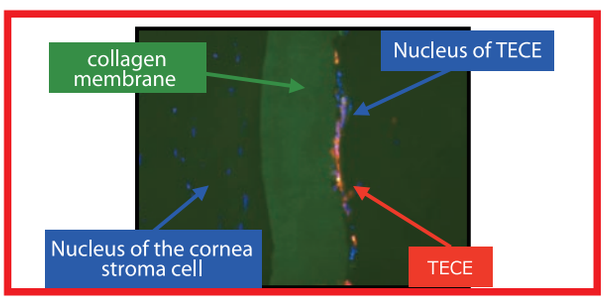
For SW culture, rat odontogenic epithelium cell line (HAT-7) and bovine dental follicle cell line (BCPb8) were seeded on opposite sides of a collagen membrane. As a result, expression of Ameloblastin and Amelogenin (important proteins for enamel formation) were markedly increased compared to SC culture or monolayer culture. These experiments revealed that the permeability of collagen membrane is advantageous for remodeling cell-cell interactions in a manner similar to *in vivo*.

Example 4

Induction of corneal endothelial differentiation and transplantation with the permeable collagen membrane (Hato S, *et al*., Keio University, Japan.)



Left panel: Rabbit cornea after tissue-engineered corneal endothelium (TECE) transplantation. Right panel: control group



Vertical section of harvested cornel graft with TECE on day 8 post-transplantation

Multipotent Cornea-derived precursors isolated from mouse and human corneal stroma were cultured on collagen membrane and differentiated to functional corneal endothelium. Transplanting TECE attached collagen membrane to donor cornea where corneal endothelium was stripped suppressed edematous and notably increased the transparency of cornea compared to control groups. These results show that collagen membrane, with its high transparency and biocompatibility, is suitable for transplantation, such as corneal transplantation.

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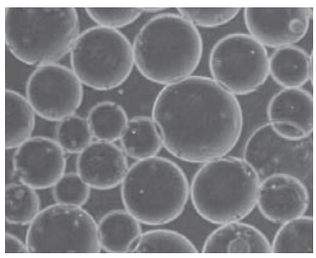
Description	Cat. No.	Item Size	Membrane size	Quantity	Storage
Atelocollagen Permeable Membrane for 50mm culture dish (sterile)	KOU-MEN-01	radius = 45 mm height = 10 mm	radius = 32 mm height = 25 µm	5 pcs/box	-20℃
Atelocollagen Permeable Membrane for 6-well culture plate (sterile)	KOU-CM-6	radius = 31 mm height = 8 mm	radius = 26 mm height = 25 µm	24 pcs/box	-20℃
Atelocollagen Permeable Membrane for 24-well culture plate (sterile)	KOU-CM-24	radius = 14 mm height = 8 mm	radius = 9 mm height = 25 µm	24 pcs/box	-20℃
Atelocollagen Permeable Membrane (sterile)	KOU-CLF-01	-	100 mm × 90 mm × 35 µm	1 sheet/bag	-20℃

Collagen Microspheres

Background

Bead-like atelocollagen carrier for cell culture. Useful for culture of fibroblasts, epithelial cell and osteoblasts due to its ability to maintain cell functions.



Applications

- High density cell culturing

Features

- Collagen microspheres create an *in vitro*-like environment as they are produced only from fibril-forming type I collagen.

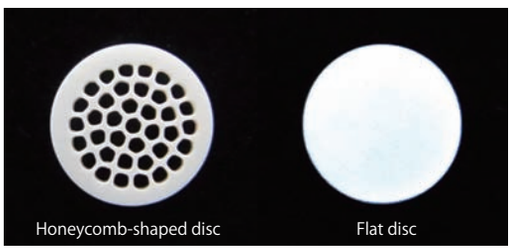
Description	Cat. No.	Quantity	Storage
Collagen Microspheres (sterile) Size: 100-400 µm, About 3,000,000 particles, Total surface area: about 3,800 cm^2/15 ml	KOU-MIC-00	15 mL/btl	2-10℃ (Do not freeze)

Collagen for Cell Culture
AteloCell®

Atelocollagen Coated β -TCP Scaffold

Background

β -calcium phosphate (β -TCP) is coated with atelocollagen, which shows high biocompatibility. β -TCP is a widely-used bone prosthetic material due to its exquisite osteoconductive properties.



Applications

- Bone remodeling studies (osteoblast, osteoclasts, etc. cell culture)
- Functional analyses of osteogenesis related factors

Features

- Honeycomb-shaped discs and Flat discs are contained (5 pieces each).

Description	Cat. No.	Quantity	Storage
Atelocollagen Coated β -TCP Scaffold (sterile) Disc size : radius = 3mm; height = 1 mm	KOU-ACB-05S	10 pcs/btl	room temperature

Type II Collagen

Background

Type II collagen extracted from bovine cartilage.

Applications

- Collagen coating for cell cultureware
- Induction of collagen-induced arthritis

Features

- Suitable for cartilage research

Description	Cat. No.	Quantity	Storage
Type II Collagen (sterile)	KOU-CL-22	10 mL/btl	2-10℃

Atelocollagen Powder

Background

Highly purified atelocollagen powder for preparing high concentration atelocollagen solutions.

Description	Cat. No.	Quantity	Storage
Atelocollagen Powder	KOU-CLP-01	500 mg/btl	2-10℃

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