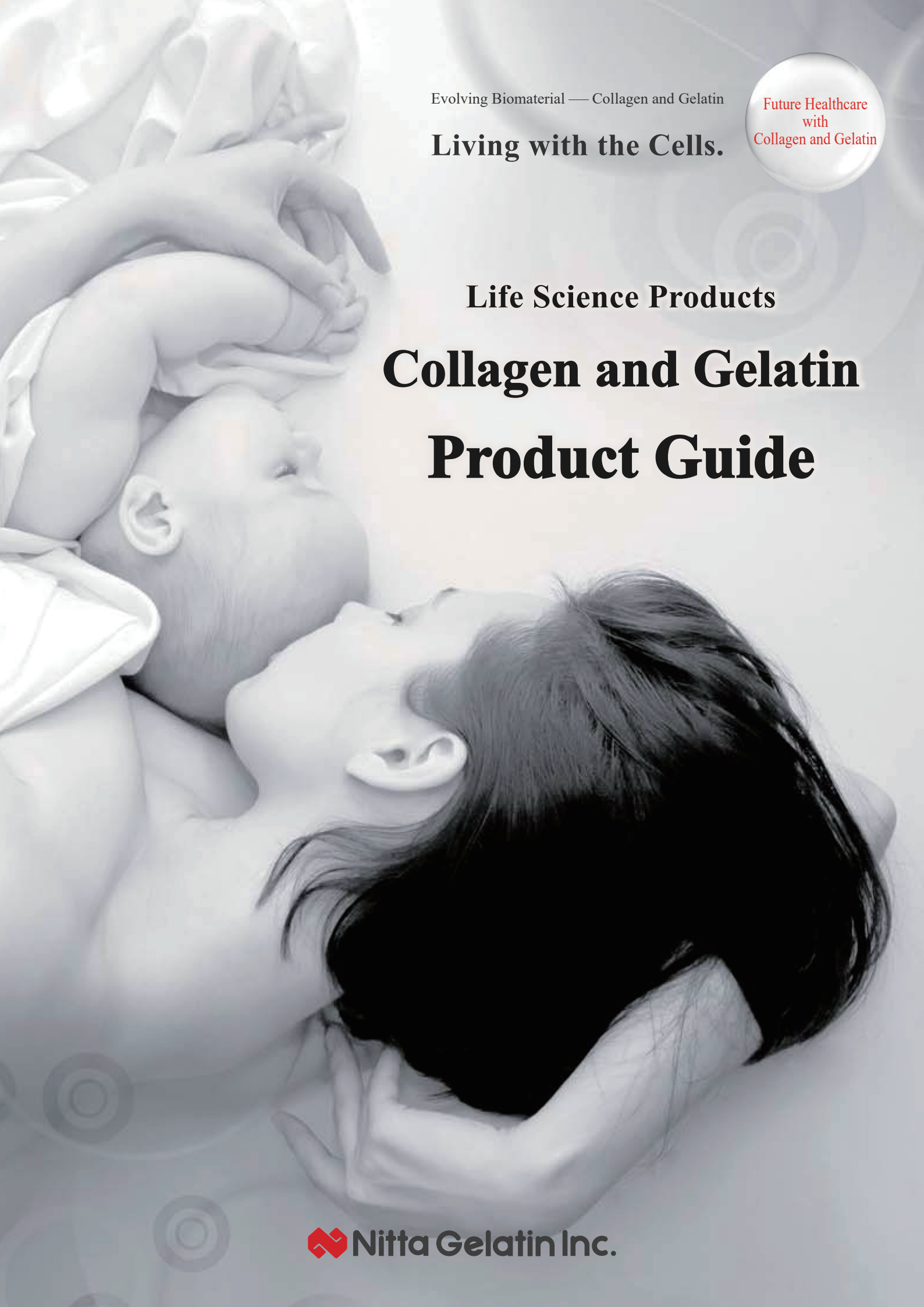
Evolving Biomaterial — Collagen and Gelatin

Living with the Cells.

Future Healthcare
with
Collagen and Gelatin



Life Science Products

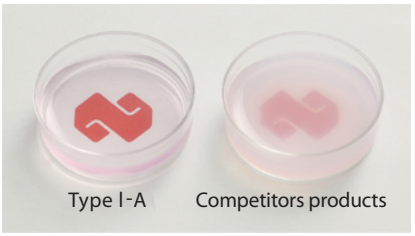
Collagen and Gelatin Product Guide

Nitta Gelatin Inc.

Collagen for cell culture

Cellmatrix®

Collagens for three-dimensional culture / for coating



Type I-A can quickly form a gel before the cells sink to the bottom of the culture dish.The gel is highly transparent, allowing easy observation of the cells embedded in the collagen gel.

- Collagen solution at pH 3 with a concentration of 3 mg/mL
- Storage condition: 4 °C to 8 °C

Cellmatrix® Type I -A

- Ideal for collagen gel culture
- Acid extracted collagen derived from porcine tendons
- Expiration date: One year from the date of manufacture

Cellmatrix® Type I -P

- For collagen gel culture and collagen-coated culture
- Pepsin-solubilized collagen derived from porcine tendons
- Expiration date: Two years from the date of manufacture

Cellmatrix® Type I -C

- For collagen-coated culture
- Pepsin-solubilized collagen derived from porcine skin
- Expiration date: Two years from the date of manufacture

Reagents for collagen gel preparation

- Storage condition: 4 °C to 8 °C
- Expiration date: In four months

Collagen-gel culturing kit

Contents

Cellmatrix® Type Ⅰ -A	20 mL	One bottle
Concentrared culture medium (Ham's F-12)	5 mL	One bottle
Concentrared culture medium (MEM-Hank's)	5 mL	One bottle
Reconstitution buffer	4 mL	Five bottles

Concentrated culture medium

Concentrated culture medium for collagen gel culture

Some items are made to order

10x concentrated product :

- Ham's F-12 concentrated culture medium
- MEM-Hanks' concentrated culture medium
- DF concentrated culture medium(DME : F-12=1:1)
- 199 concentrated culture medium

5x concentrated product :

- DME concentrated culture medium
- RPMI-1640 concentrated culture medium

Reconstitution buffer

Buffer solution for reconstitution, for collagen gel culture

Composition

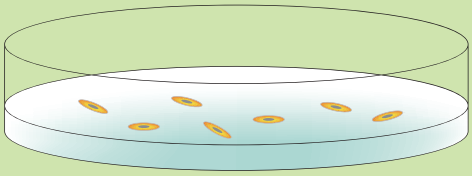
Sodium hydroxide	50 mM
Sodium hydrogen carbonate	260 mM
HEPES	200 mM

Method of collagen gel culture

1) Prepare the following reagents.
   A: Cellmatrix® Type I-A or I-P
   B: 10x* concentrated culture medium
   C: Reconstitution buffer
2) Under cooling condition, mix A and B well, being careful not to create bubbles. Then add C and mix them in the same way.
   * : In the case of using 5x concentrated culture medium, set the ratio of A:B:C to 7:2:1.

Cultivation on collagen gel

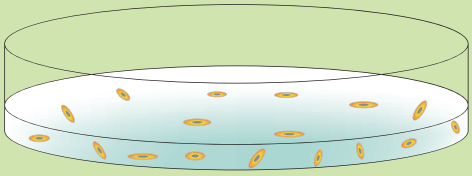
A method to culture the cells on the collagen gel



3) Pour the cooled mixed collagen solution to a culture dish and warm it at 37°C for about 30 minutes to form collagen gel.
4) Seed the cells on the collagen gel.
5) After the cells adhere to the collagen gel, culture in the same way as normal monolayer culture.

Collagen gel-embedded culture

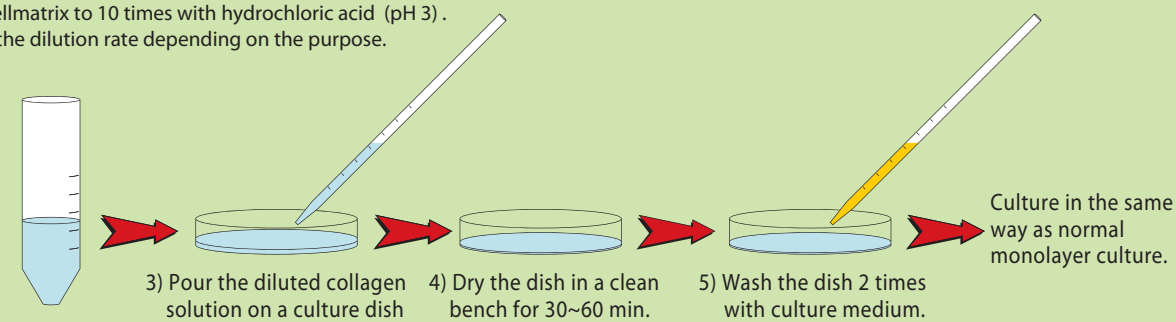
A method of three-dimensional cell culture in collagen gel



3)' Under cooling conditions, add the cell suspension to the mixed collagen solution and mix them well.
4)' Pour the solution prepared above onto a culture dish and warm it at 37°C for about 30 minutes to form a gel.
5)' After gel formation, overlay the culture medium and culture in the same way as normal monolayer culture.

Method of collagen coating

1) Prepare Cellmatrix® Type I-P or I-C.
2) Dilute Cellmatrix to 10 times with hydrochloric acid (pH 3) . Change the dilution rate depending on the purpose.



3) Pour the diluted collagen solution on a culture dish and remove the excess solution.
4) Dry the dish in a clean bench for 30~60 min.
5) Wash the dish 2 times with culture medium.

Culture in the same way as normal monolayer culture.

Products list

Product name	Content
Cellmatrix® Type Ⅰ-A	20 mL
	100 mL
Cellmatrix® Type Ⅰ-P	20 mL
	100 mL
Cellmatrix® Type Ⅰ-C	20 mL
	100 mL
Collagen-gel culturing kit	1 kit
Ham's F-12 concentrated culture medium	100 mL
MEM-Hank's concentrated culture medium	100 mL
DF concentrated culture medium	100 mL
199 concentrated culture medium	100 mL
DME concentrated culture medium	100 mL
RPMI-1640 concentrated culture medium	100 mL
Reconstitution buffer	4 mL × 15 bottles

Warning

For Research Use Only
The above products are sold for research purposes only. Regardless of purposes, such as the production of drugs, product quality control, various diagnostic tests, medical treatment, or other researches, do not use the products for the human body.

Collagen / Gelatin for tissue engineering

beMatrix®

Low endotoxin collagen

beMatrix® collagen AT

Acid extracted collagen solution derived from porcine tendon

- Endotoxin level: NMT 0.5 EU/mL
- Storage condition: 4 °C to 8 °C
- Expiration date: Two years from the date of manufacture
- Concentration: 3 mg/mL, pH 3

beMatrix® collagen FD2.0

Lyophilized pepsin-solubilized collagen derived from porcine skin
Possible to adjust high concentrated solution

- Endotoxin level: NMT 100 EU/g
- Validated viral inactivation
- Documented traceability up to the farm
- Storage condition: Room temperature
- Expiration date: Two years from the date of manufacture

■ Application

- Scaffold for cell culture / transplantation
- Electrospinning etc.

Products list

Product name	Content
beMatrix® collagen AT	100 mL
beMatrix® collagen FD2.0	10 g

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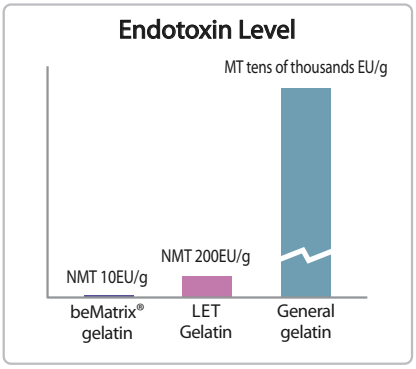
Low endotoxin gelatin

- Endotoxin level: NMT 10EU/g
- IPEC-PQG GMP compliant
- DMF / MAF registered *1
- Expiration date: Three years from the date of manufacture
- Virus inactivated
- Performed USP & JP methods testing
- Storage condition: Room temperature



beMatrix® gelatin LS－H

- Alkaline-treated gelatin derived from porcine skin
- High gel strength : 300 g

beMatrix® gelatin LS－250

- Alkaline-treated gelatin derived from porcine skin
- High gel strength : 250 g
- γ-ray irradiated

beMatrix® gelatin LS－W

- Made to order product
- Alkaline-treated gelatin derived from porcine skin
- Low gel strength : 100 g
- Safety Test

Test Item	Cytotoxicity	Sensitization	Intradermal Reaction	Pyrogen	Antigenicity
Result	Negative	Negative	Negative	Negative	Negative

beMatrix® gelatin HG

- Hydrolyzate of alkaline-treated gelatin derived from porcine skin
- Non gelling grade
- γ-ray irradiated
- Safety Test

Test Item	Cytotoxicity	Sensitization	Intradermal Reaction	Pyrogen	Antigenicity	Acute Systemic Toxicity	Subacute Toxicity
Result	Negative	Negative	Negative	Negative	Negative	Negative	Negative

Products list

Product name	Content
beMatrix® gelatin LS-H	10 g
beMatrix® gelatin LS-250	10 g
beMatrix® gelatin LS-W	Please contact us
beMatrix® gelatin HG	10 g

*1: some items are not eligible for registration

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Gelatin hydrogel for drug delivery system

MedGel® II

Hydrogel for sustained release of drugs

- Simple use just by adding drug.
- Drug stabilization in vivo, site-specific drug release.
- No chemical crosslinking agent used.

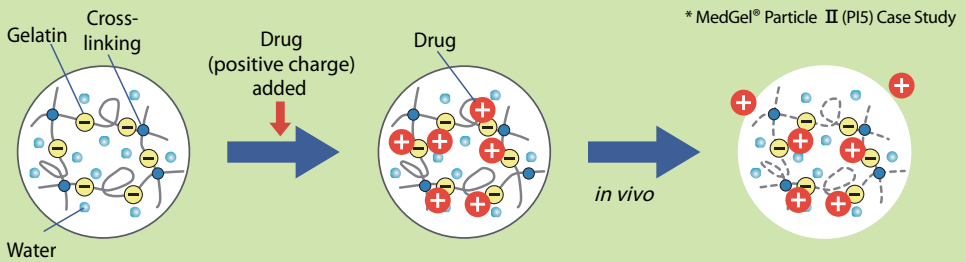
MedGel® Sheet II (PI5)

- Storage condition : Room temperature
- Expiration date : Two years from the date of manufacture
- pI (isoelectric point) : Approximately 5
  Negative charge in neutral solution

MedGel® Particle II (PI5)

- Storage condition : Room temperature
- Expiration date : Two years from the date of manufacture
- pI (isoelectric point) : Approximately 5
  Negative charge in neutral solution

Mechanism of drug delivery through MedGel II



Products list

Product name	Content
MedGel® Sheet II (PI5)	150 mg
MedGel® Particle II (PI5)	100 mg

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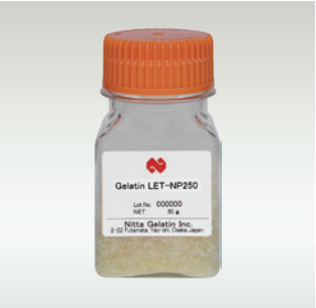
Other products line-up

Gelatin LET－NP250

Low endotoxin gelatin derived from acid-treated porcine skin



- Performed USP & JP methods testing
- Endotoxin level: NMT 200 EU/g
- Storage condition: Room temperature
- Expiration date: Three years from the date of manufacture

Collagen BM

Pepsin-solubilized collagen derived from porcine skin

- Storage condition ： Stored frozen
- Expiration date: Two years from the date of manufacture
- Concentration: 5 mg/mL, pH 3

Products list

Product name	Content
Gelatin LET-NP250	50 g
Collagen BM	1 kg

Warning

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