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The quality for certainty.

Biochemical Reagents

5th Edition

NACALAI TESQUE, INC.

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Nucleic Acid Isolation/ Electrophoresis

Cell Culture

Cell Extraction / Protein Assay

Protein Purification

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Protein Electrophoresis

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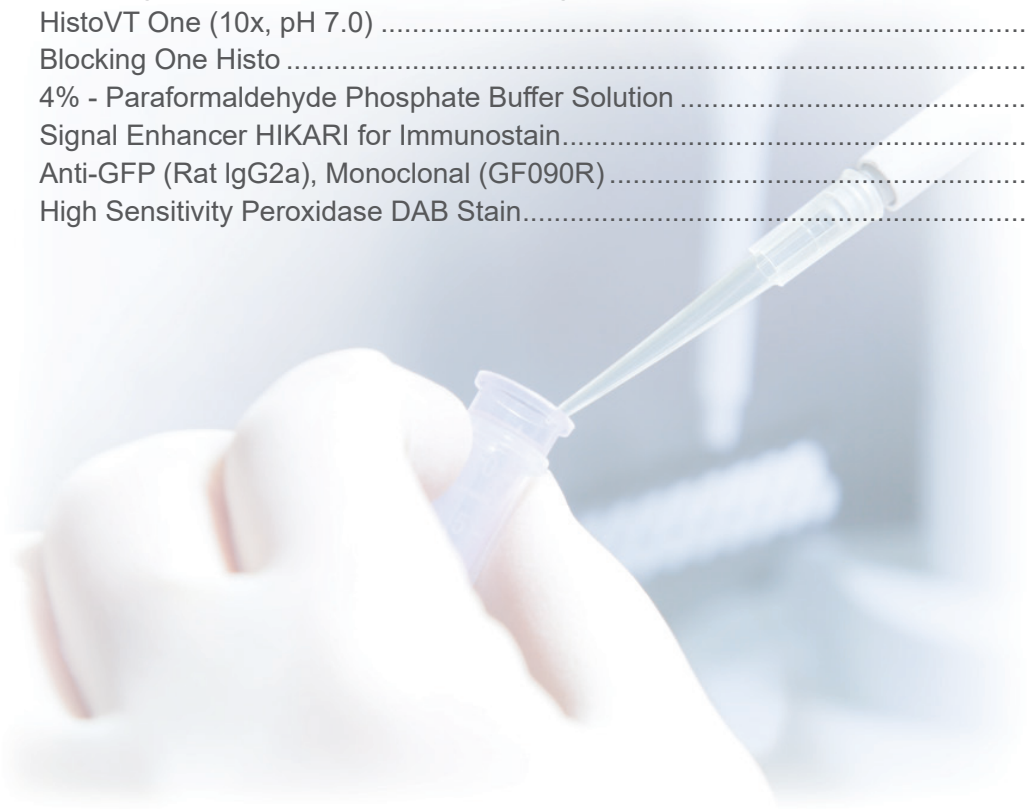
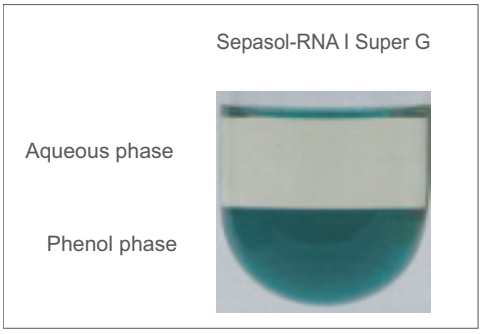
Immunohistochemistry



Total RNA Isolation Reagent; Sepasol-RNA I Super G

» **Ready-to-use green mono-phasic solution**
» **Easy to identify interphase**
» **Less than 1hr for RNA isolation**
» **Applicable downstream applications such as RT-PCR**

Phenol Phase Color



Protocol

Sample (5-10 × 10^6 cells, 50−100 mg tissue)

1 ml Sepasol-RNA I Super G
Homogenize sample in Sepasol
Keep at room temperature for 5 min

200 µl Chloroform
Shake the tube
Keep at room temperature for 3 min

Centrifuge the tube at 12,000 x g for 15 min at 4°C
Transfer the upper aqueous phase to a fresh tube

Aqueous phase

500 µl 2-Propanol
Keep at room temperature for 10 min

Centrifuge the tube at 12,000 x g for 10 min at 4°C
Remove the supernatant (approx. 1 ml)

1−2 ml 75% Ethanol
Stir and make them suspend

Centrifuge the tube at 12,000 x g for 5 min at 4°C
Remove the supernatant (approx. 1 ml)

Total RNA

Yield and Purity of the Isolated RNA

Data on isolated total RNA from HL-60 cell by Sepasol-RNA I Super G (Left) and by the previous product, Sepasol-RNA I Super (Right). The isolation was from 5 x 10^6 cell.

Product Name	Yield (µg)	Purity (A_{260}/A_{280})
Sepasol-RNA I Super G	32.4	2.08
Sepasol-RNA I Super	29.8	2.07

Reference

Mouse primary hepatocytes: Young-Il Kim,*et al. Mol. Nutr. Food Res.* **55**, 585–593 (2011)
Primary hepatocytes, as well as liver and skeletal muscle: Young-Il Kim, *et al. PLoS ONE* **7**(2), e31317
HeLa cells: Asako McCloskey, *et al.Science* **335**, 1643 (2012)
Arabidopsis thaliana: G. H. M. Sagor, *et al. Plant Biotechnology* **28**, 407–411(2011)
Plants of tobacco: Sudarshanee Geekiyanage, *et al. Plant Biotechnol Rep* **1**, 11–18 (2007)
Plants: Michiko Yasuda, *et al. The Plant Cell June* **20**(6) 1678-1692 (2008)
Organs: Y Okada, *et al. Gene Therapy* **10**, 700–705 (2003)
The rosette leaves of Arabidopsis seedlings: Teruyuki Morishita, *et al. Plant Cell Physiol* **50**(12), 2210-2222 (2009)
P19 cells: Yoshiyuki Kubo, *et al. MOLECULAR AND CELLULAR BIOLOGY*, 4138 (2005)
Plants: R. Oono, *et al. Journal of Experimental Botany*, **52**(365), 2367-2374
Jurkat cells: Mano Horinaka, *et al. Mol Cancer Ther* **5**, 945-951 (2006)
Hepatocytes: Nishizawa et al, *et al. HOAJ Biology*, ISSN 2050-0874 (2012)
Cells: Shinobu Kitazume, *et al. The Journal of Biological Chemistry,* **285**, 40097-40103

Ordering Information

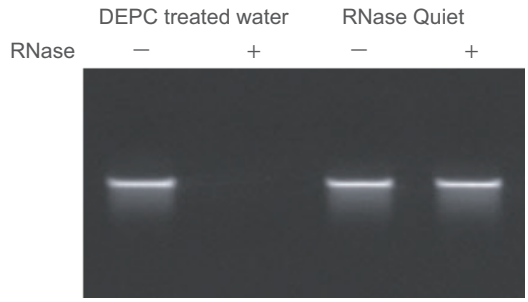
Product Name	Storage	Product No.	PKG Size
Sepasol-RNA I Super G (for animal tissue, plant cells)	R	09379-26	10 ml
		09379-84	100 ml
		09379-97	200 ml
		09379-55	500 ml
Sepasol-RNA II Super (for any blood cells)	R	30487-46	100 ml

[Storage] R = Refrigerator

RNase Decontamination; RNase Quiet

» **Removes RNase contamination effectively**
» **Easy to use spray type**
» **Easy to wipe with no detergent**
» **Non-carcinogenic with no DEPC**

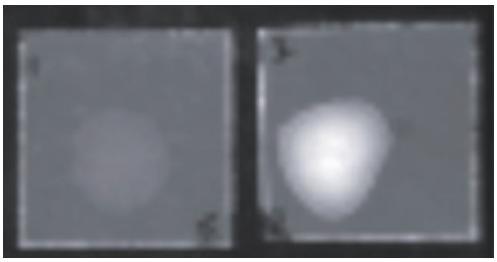
Decontamination of 1.5 ml Micro-tubes



Conditions

1. (+): Add 10 µl RNase A solution (10 mg/ml) in 1.5 ml micro-tubes.
   (−): Add 10 µl lysate buffer in 1.5 ml micro-tubes.
2. Add 1 ml DEPC treated water or RNase Quiet and wait for 1 minute. Remove the solution from the tube.
3. Add 25 µl RNA Solution (40 µg/ml) and incubate them at 37°C for 30 minutes.
4. Analyze RNA solution by electrophresis with 1% agarose gel including 100 ng/ml ethidium bromide and then staining gel with 200 ng/ml ethidium bromide solution.

Decontamination of Cover Glass



Conditions

1. Apply 100 µl RNase A solution (1 mg/ml) on cover glasses and dry them.
2. Spray with DEPC treated water or RNase Quiet and wait for 1 minute. Wipe thoroughly with a clean paper towel and then rinse with RNase-free sterile water.
3. Apply 50 µl RNA Solution (40 µg/ml) on the cover glasses and incubate them at 37°C for 30 minutes.
4. Apply 1 µl ethidium bromide solution (20 µg/ml) on the cover glasses with a pipette.
5. Observe the cover glasses with UV.

Ordering Information

Product Name	Storage	Product No.	PKG Size
RNase Quiet (with spray nozzle)	RT	09147-14	475 ml
RNase Quiet Refill	RT	09477-94	475 ml

[Storage] RT = Room temperature

Coprecipitant of DNA/RNA; Gene-Packman Coprecipitant

» **Almost complete nucleic acid recovery**
» **No requirement of low-temperature incubation**
» **Endotoxin, DNase and RNase tested**
» **High nucleic acid pellet visibility**

No Effect of Gene-Packman Coprecipitant to PCR

In order to figure out that Gene-Packman Coprecipitant does not effect PCR performance, the one was consciously added to PCR reaction solutions which amplify 1,000 bp DNA fragments. Additive amount of Gene-Packman Coprecipitant to PCR reaction solutions is below;

Amount of Gene-Packman Coprecipitant to PCR reactin solution: Lane 1: 0 µl, Lane 2: 0.2 µl, Lane 3: 0.5 µl, Lane 4: 1.0 µl, Lane 5: 3.0 µl and Lane 6: 5.0 µl.

PCR condition;
Reaction Volume: 25 µl reaction
Tempate DNA: 15 ng
Denaturation: 94°C for 0.5 min.
Annealing: 55°C for 0.5 min.
Extension: 72°C for 1 min.
Cycle: 25 times

The agarose gel image left shows no interference with Gene-Packman Coprecipitant to PCR performance.

Ordering Information

Product Name	Storage	Product No.	PKG Size
Gene-Packman Coprecipitant	R	12680-30	1 kit

[Storage] R = Refrigerator

IPTG and X-gal Solutions

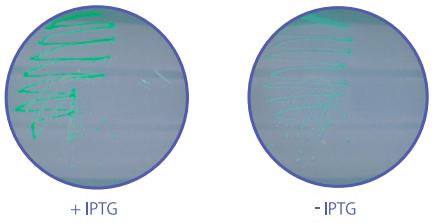
● 100mmol/l-Isopropyl-β-D-thiogalactopyranoside [IPTG] Solution

» **0.22 μm filtrated ready-to-use solution**
» **Sterilized**
» **No need to adjust concentration**
» **1 ml package size allows for easy application**

Application

Recombinant protein expressions are evaluated by the green fluorescent protein (GFP) expressing vector in *E. coli*.

Induced expression by IPTG



Numerous fluorescent proteins can be expressed by adding IPTG. In situations where IPTG is not applied, expressions occur at the basal level.

E. Coli：BL21 (DE3) pLysS (Novagen)
Vector：pQBI-T7-GFP (Q-Bio gene)
IPTG concentration：1mM
Detection：Transilluminator

Ordering Information

Product Name	Storage	Product No.	PKG Size
100mmol/l-Isopropyl-β-D-thiogalactopyranoside [IPTG] Solution	F	07496-91	10 x 1 ml

[Storage] F = Freezer

● 5-Bromo-4-chloro-3-indolyl-β-D-galactoside [X-gal] Solution (20 mg/ml)

5-Bromo-4-chloro-3-indolyl-β-D-galactoside (X-Gal) is widely used for Blue/White selection.

» **Ready to use DMF solution**
» **1 ml package size allows for easy application**

Ordering Information

Product Name	Storage	Product No.	PKG Size
5-Bromo-4-chloro-3-indolyl-β-D-galactoside Solution(20 mg/ml)	F	03971-71	10 x 1 ml

[Storage] F = Freezer

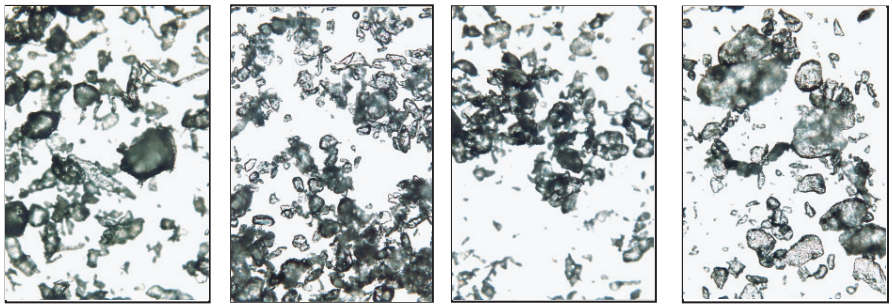
Agarose for Nucleic Acid Electrophoresis

● Fine-powdered Agarose

» **High solubility:** **Smaller average particle size for easy disolution**
» **Simple:** **Easy-to-weigh**
» **High sharpness:** **Sharp and clean electrophoresis result**

Solubility Comparison (Particle size and solubility)

Solubility tests have been done using microwave oven (400W).
Photo image: microscope (x25)



Agarose:	Conventional	**Fine-powdered**	A Company	B Company
Solubility (speed):	Fast	Very fast	Very fast	Normal
Time:	2 min 50 sec	1 min 53 sec	1 min 55 sec	3 min 10 sec

Specification

Type :	≧ 1kbp
Sulfate (%) :	≦ 0.2
Gel Strength :	≧ 2,500 g/cm^2 (at 1.5%)
Gel Point (°C) :	36 ± 1.5
Electroendosmosis (-mr) :	0.09-0.13

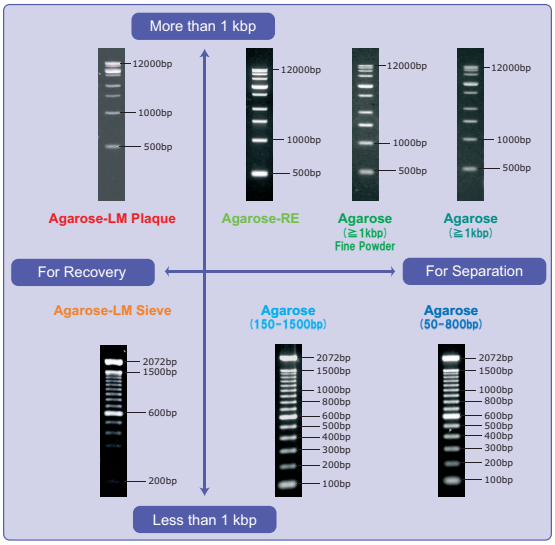
Ordering Information

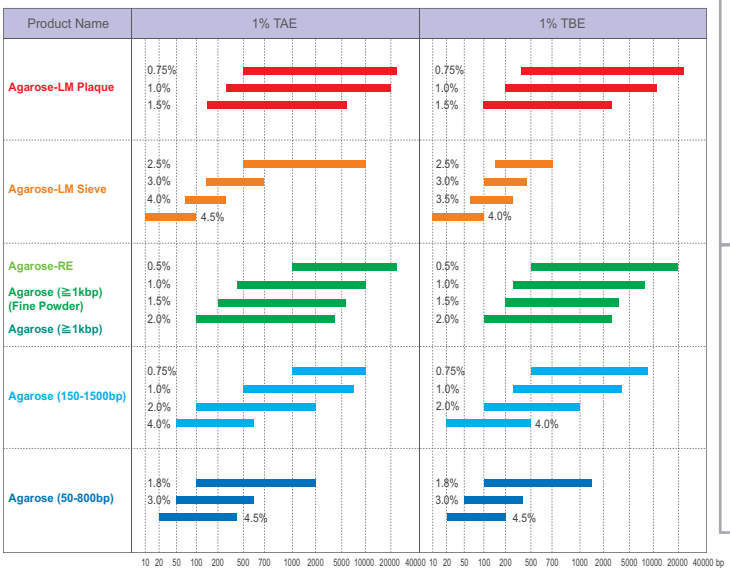
Product Name	Storage	Product No.	PKG Size
Agarose for ≧ 1kbp fragment (Fine Powder)	RT	02468-24	10 g
		02468-66	100 g
		02468-95	500 g

[Storage] RT = Room temperature

● Other Agaroses

Agarose Gel Selection Guide





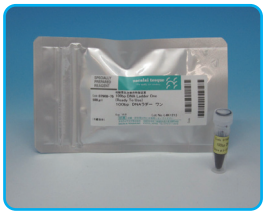
Ordering Information

Product Name	Storage	Product No.	PKG Size
Agarose for ≧ 1kbp fragment Type : ≧ 1kbp Sulfate (%) : ≦ 0.2 Gel Strength : ≧ 2,500 g/cm^2 (at 1.5%) Gel Point (°C) : 36 ± 1.5 Electroendosmosis (-mr) : 0.09 - 0.13	RT	01163-92 01163-76 01163-05	25 g 100 g 500 g
Agarose-RE for ≧ 1kbp fragment, for Restriction and Ligation Type : ≧ 1kbp Sulfate (%) : ≦ 0.2 Gel Strength : ≧ 2,500 g/cm^2 (at 1.5%) Gel Point (°C) : 36 ± 1.5 Electroendosmosis (-mr) : 0.09 - 0.13 DNase, RNase tested	RT	01149-92 01149-76 01149-05	25 g 100 g 500 g
Agarose for 150-1,500bp fragment Type : 150-1,500bp Sulfate (%) : ≦ 0.1 Gel Strength : ≧ 2,000 g/cm^2 (at 1.5%) Gel Point (°C) : ≦ 36.5 Electroendosmosis (-mr) : ≦ 0.12 DNase, RNase tested	RT	01153-22 01153-64	25 g 100 g
Agarose for 50-800bp fragment Type : 50-800bp Sulfate (%) : ≦ 0.1 Gel Strength : ≧ 750 g/cm^2 (at 1.5%) Gel Point (°C) : 30 Electroendosmosis (-mr) : ≦ 0.12 DNase, RNase tested	RT	01147-12 01147-96	25 g 100 g
Agarose-LE, Classic type Type : LE, Classic Sulfate (%) : ≦ 0.2 Gel Strength : ≧ 2,500 g/cm^2 (at 1.5%) Gel Point (°C) : 36 ± 1.5 Electroendosmosis (-mr) : 0.09 - 0.13	RT	01157-82 01157-66 01157-95	25 g 100 g 500 g
Agarose-ME, Classic type Type : ME, Classic Sulfate (%) : ≦ 0.25 Gel Strength : ≧ 2,000 g/cm^2 (at 1.5%) Gel Point (°C) : 36 ± 1.5 Electroendosmosis (-mr) : 0.16 - 0.19	RT	01158-72 01158-56 01158-85	25 g 100 g 500 g
Agarose for ≧ 1kbp fragment (Fine Powder) Type : ≧ 1kbp Sulfate (%) : ≦ 0.5 Gel Strength : ≧ 2,500 g/cm^2 (at 1.5%) Gel Point (°C) : 36 ± 1.5 Electroendosmosis (-mr) : 0.09 - 0.13	RT	02468-24 02468-66 02468-95	10 g 100 g 500 g
Agarose-LM (melting temperature ≦ 65°C) Type : Low Melting Agarose Sulfate (%) : ≦ 0.2 Gel Strength : ≧ 550 g/cm^2 (at 1.5%) Gel Point (°C) : 26 ± 2 Melting Temp. (°C) : ≦ 65 Electroendosmosis (-mr) : ≦ 0.12	RT	01161-12 01161-54	25 g 100 g
Agarose-LM Plaque for ≧ 1kbp fragment Type : Low Melting Agarose ≧ 1kbp fragment Sulfate (%) : ≦ 0.5 Gel Strength : ≧ 250 g/cm^2 (at 1.5%) Gel Point (°C) : ≦ 30 Melting Temp. (°C) : ≦ 65.5 Electroendosmosis (-mr) : ≦ 0.12 DNase, RNase tested	RT	01650-02 01650-86	25 g 100 g
Agarose-LM Sieve for ≦ 1kbp fragment Type : Low Melting Agarose ≦ 1kbp fragment Sulfate (%) : ≦ 0.5 Gel Strength : ≧ 1,000 g/cm^2 (at 4%) Gel Point (°C) : ≦ 35 Melting Temp. (°C) : ≦ 65 Electroendosmosis (-mr) : ≦ 0.12 DNase, RNase tested	RT	01651-92 01651-76	25 g 100 g
Agarose-RE for ≧ 1kbp fragment, for Restriction and Ligation Type : Enzyme Reaction Tested for ≧ 1kbp fragment Sulfate (%) : ≦ 0.5 Gel Strength : ≧ 2,500 g/cm^2 (at 1.5%) Gel Point (°C) : ≦ 36 ± 1.5 Tested for Silver staming, DNase, RNase and Enzyme reaction	RT	01149-92 01149-76 01149-05	25 g 100 g 500 g

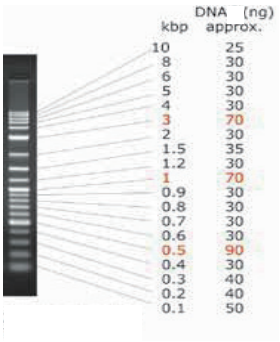
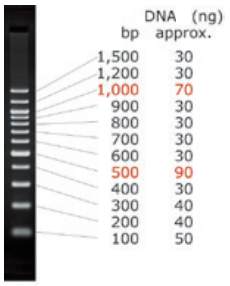
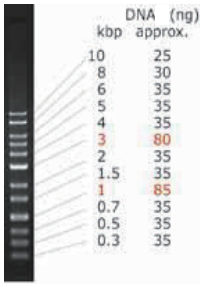
[Storage] RT = Room temperature

DNA Ladder Markers

» **Covers wide range from 0.1kbp to 10kbp**
» **Emphasis of 0.5, 1 and 3 kbp bands**
» **Ready-to-use markers containing 2 loading dyes**



Product Contents

Broad Range	100bp	1kbp
		
2% Agarose gel/TAE DNA marker 5 µl	2.5% Agarose gel/TBE DNA marker 5 µl	0.8% Agarose gel/TAE DNA marker 5 µl
Concentration 0.15 g/l	Concentration 0.1 g/l	

Ordering Information

Product Name	Storage	Product No.	PKG Size
DNA Ladder One (Broad Range) (Ready-to-use)	R	08362-85	500 µl
100bp DNA Ladder One (Ready-to-use)	R	07908-75	500 µl
1kbp DNA Ladder One (Ready-to-use)	R	08232-85	500 µl

[Storage] R = Refrigerator

Ethidium Bromide Solution (0.44 mg/ml)

Ethidium Bromide Solution (0.44 mg/ml) is easy and safe to use because of its eye-drop bottle. It is used in adjustment of nucleic acid staining after electrophoresis or gel containing ethidium bromide.

How to use

Adjust the concentration of ethidium bromide solution as follows

Concentration of Ethidium Bromide	Adjusting Solution	Ethidium Bromide Solution (0.44 mg/ml)
0.1 µg/ml	200 ml	1 drop
0.2 µg/ml	100 ml	1 drop
0.5 µg/ml	40 ml	1 drop

Note:
1. 1 drop of Ethidium Bromide Solution (0.44 mg/ml) is 45 µl.
2. In situations where Ethidium Bromide Solution (0.44 mg/ml) is used in concentrations other than shown in the above table, remove the nozzle, collect the appropriate amount with a micropipette and dilute accordingly.
3. For adjustments of even greater ethidium bromide solution volumes, use Ethidium Bromide Solution (10 mg/ml) (Product No. 14631-94).

Ordering Information

Product Name	Storage	Product No.	PKG Size
Ethidium Bromide Solution (0.44 mg/ml) eye-drop-bottle	R	02393-94	10 ml
Ethidium Bromide Solution (10 mg/ml)	R	14631-94	10 ml
Ethidium Bromide	RT	14603-51	1 g
		14603-64	5 g

[Storage] R = Refrigerator, RT = Room temperature

Related Products

Product Name	Storage	Product No.	PKG Size
Phenol, Saturated with TE Buffer Phenol content: approx. 69w/w%, pH7.9	R	26829-54	100 ml
		26829-96	400 ml
Phenol, Saturated with TE Buffer Phenol content: approx. 70w/w%, pH6.6, includes a buffer for adjusting pH7.9	R	25969-54	100 ml
		25969-96	400 ml
Phenol:Chloroform:Isoamyl Alcohol 25:24:1 Mixed, pH5.2	R	26058-54	100 ml
		26058-96	400 ml
Phenol:Chloroform:Isoamyl Alcohol 25:24:1 Mixed, pH6.7	R	25967-74	100 ml
		25967-16	400 ml
Phenol:Chloroform:Isoamyl Alcohol 25:24:1 Mixed, pH7.9	R	25970-14	100 ml
		25970-56	400 ml
Proteinase K from Tritirachium album	R	29442-14	100 mg
		29442-85	500 mg
8mol/l-Guanidine Hydrochloride Solution	RT	17356-24	100 ml
6mol/l-Guanidine Thiocyanate Solution	RT	16689-04	100 ml
100g/l-Hexadecyltrimetylammonium Bromide Solution	RT	17472-94	100 ml
Isopropyl-β-D-thiogalactopyranoside [IPTG], Dioxane free	R	19742-36	100 mg
		19742-81	1 g
		19742-94	10 g
5-Bromo-4-chloro-3-indolyl-α-D-galactoside [X-α-Gal]	R	02897-62	25 mg
		02897-04	100 mg
5-Bromo-4-chloro-3-indolyl-β-D-galactoside [X-Gal]	R	05627-86	10 mg
		05627-57	100 mg
		05627-31	1 g
		05627-44	5 g
		05644-14	5 x 20 mg
5-Bromo-4-chloro-3-indolyl-β-D-glucuronide Cyclohexylammonium Salt	F	05646-94	10 mg
		05646-36	100 mg
Tris-Acetate-EDTA Buffer (10x) [TAE Buffer]	RT	35430-61	1 L
		35430-74	5 L
Tris-Acetate-EDTA Buffer (50x) [TAE Buffer]	RT	32666-81	1 L
Tris-Borate-EDTA Buffer (5x) [TBE Buffer]	RT	35432-41	1 L
Tris-Borate-EDTA Buffer (10x) [TBE Buffer]	RT	35440-31	1 L
		35440-44	5 L
Denhardt's Stock Solution (50x) [50x Denhardt's Solution]	F	10727-74	50 ml
1mol/l-Dithiothreitol Solution [1mol/l-DTT Solution]	F	14130-41	1 ml
8mol/l-Lithium Chloride Solution	RT	20077-84	5 x 10 ml
1mol/l-Magnesium Chloride Solution, Sterile-filtered and Autoclaved	RT	20942-34	5 x 10 ml
MOPS Buffer Stock Solution (10x) (pH 7.0)	RT	23442-81	1 L
Phosphate Buffered Saline (10x) (pH 7.4), DEPC treated, Nuclease tested	RT	27576-21	1 L
SSC Buffer Stock Solution (20x) [20x SSC]	RT	32146-04	5 L
		32146-91	1 L
SSPE Buffer Stock Solution (20x) [20x SSPE]	RT	32149-61	1 L
1mol/l-Tris-HCl Buffer Solution (pH 7.6)	RT	35436-01	1 L
SSPE Buffer Stock Solution (20x) [20x SSPE]	RT	32149-61	1 L
1mol/l-Tris-HCl Buffer Solution (pH 8.0)	RT	35435-11	1 L

[Storage] RT = Room temperature, R = Refrigerator, F = Freezer

Cell Culture Reagents

Cell Culture Medium

» **Animal origin-free**
» **Sterility tested for bacteria, fungus and mycoplasma**
» **Endotoxin tested**
» **pH 7.1-7.5**

Ordering Information

Product Name	Storage	Product No.	PKG Size
DMEM (1.0g/l Glucose) with L-Gln and Sodium Pyruvate, liquid	R	08456-65	500 ml
		08456-36	10 bottles x 500 ml
DMEM (1.0g/l Glucose) with Sodium Pyruvate, without L-Gln and Phenol Red, liquid	R	08490-05	500 ml
DMEM (4.5g/l Glucose) with L-Gln and HEPES, without Sodium Pyruvate, liquid	R	08457-55	500 ml
DMEM (4.5g/l Glucose) with L-Gln and Sodium Pyruvate, liquid	R	08458-45	500 ml
		08458-16	10 bottles x 500 ml
DMEM (4.5g/l Glucose) with L-Gln, without Sodium Pyruvate, liquid	R	08459-35	500 ml
		08459-64	10 bottles x 500 ml
DMEM (4.5g/l Glucose) without L-Gln, Sodium Pyruvate and Phenol Red, liquid	R	08489-45	500 ml
DMEM (4.5g/l Glucose) without L-Gln and Sodium Pyruvate, liquid	R	08488-55	500 ml
DMEM (4.5g/l Glucose) with Sodium Pyruvate, without L-Gln, liquid	R	11584-85	500 ml
DMEM (4.5g/l Glucose) with HEPES, without L-Gln and Sodium Pyruvate, liquid	R	11585-75	500 ml
DMEM (No Glucose) with L-Gln, without Sodium Pyruvate, liquid	R	09891-25	500 ml
DMEM/Ham's F-12 with L-Gln, Sodium Pyruvate and HEPES, liquid	R	08460-95	500 ml
DMEM/Ham's F-12 with L-Gln, Sodium Pyruvate and HEPES, without Phenol Red, liquid	R	05177-15	500 ml
DMEM/Ham's F-12 with L-Gln and Sodium Pyruvate, without HEPES, liquid	R	11581-15	500 ml
DMEM/Ham's F-12 with L-Gln and Sodium Pyruvate, without HEPES and Phenol Red, liquid	R	11582-05	500 ml
DMEM/Ham's F-12 with Sodium Pyruvate and HEPES, without L-Gln, liquid	R	11583-95	500 ml
DMEM/Ham's F-12 (No Glucose) with L-Gln and Sodium Pyruvate, liquid	R	09893-05	500 ml
IMDM with L-Gln and HEPES, liquid (Iscove's Modified Dulbecco's Medium)	R	11506-05	500 ml
Ham's F-12 with L-Gln, liquid	R	17458-65	500 ml
MEM with Earle's Salts and L-Gln, liquid	R	21442-25	500 ml
MEM with Earle's Salts, L-Gln and Non-Essential Amino Acids, liquid	R	21443-15	500 ml
MEM (No Glucose) with Earle's Salts, L-Gln and Non-Essential Amino Acids, liquid	R	09848-05	500 ml
α-MEM with L-Gln, Ribonucleosides and Deoxyribonucleosides, liquid	R	21444-05	500 ml
α-MEM with L-Gln, without Ribonucleosides and Deoxyribonucleosides, liquid	R	21445-95	500 ml
RPMI 1640 with L-Gln and HEPES, liquid	R	30263-95	500 ml
RPMI 1640 with L-Gln, liquid	R	30264-85	500 ml
		30264-56	10 bottles x 500 ml
RPMI 1640 with L-Gln, without Phenol Red, liquid	R	06261-65	500 ml
RPMI 1640 with L-Gln, liquid	R	05176-25	500 ml
RPMI 1640 (No Glucose) with L-Gln, liquid	R	09892-15	500 ml

Compositions of each product are available on online catalog, “e-Nacalai Search Version” at www.nacalai.com

Custom Cell Culture Media

For researchers who want

- Specific compositions that appeared in the literature
- To modify the composition of commercially available cell culture media
- To get rid of phenol red due to its estrogenic effect

Product Form	Liquid
Minimum PKG Size	500 ml
Guaranteed items	pH, Osmotic pressure, Sterilized, Endotoxin tested, Mycoplasma tested
Lead time	6-8 weeks

How to Order

Please visit our website at http://www.nacalai.co.jp/global/reagent/custom/Custom_Services.html and fill out the request form.

Balanced Salines

» **Sterilized by 0.2 µm membrane filter, tested for bacteria, fungus, mycoplasma and endotoxin**

D-PBS(-) w/o Ca and Mg, liquid

D-PBS(-) w/o Ca and Mg, powder

D-PBS(+) Preparation Reagent (Ca,Mg Solution) (100x)

Ordering Information

Product Name	Storage	Product No.	PKG Size
D-PBS(+) Preparation Reagent (Ca,Mg Solution) (100x)	RT	02492-94	30 ml
D-PBS(-) without Ca and Mg, liquid	RT	14249-95	500 ml
		14249-24	10 bottles x 500 ml
D-PBS(-) without Ca and Mg, liquid (10x)	R	11482-15	500 ml
D-PBS(-) without Ca and Mg, Powder	RT	07269-84	100 g
HBSS(+) with Ca, Mg and Phenol Red, liquid	RT	17459-55	500 ml
HBSS(+) with Ca, Mg, without Phenol Red, liquid	RT	09735-75	500 ml
HBSS(-) without Ca and Mg, with Phenol Red, liquid	RT	17460-15	500 ml
HBSS(-) without Ca, Mg and Phenol Red, liquid	RT	17461-05	500 ml

[Storage] RT = Room temperature, R = Refrigerator

Supplements

» **Sterilized by 0.2 µm membrane filter, tested for bacteria, fungus, mycoplasma and endotoxin**

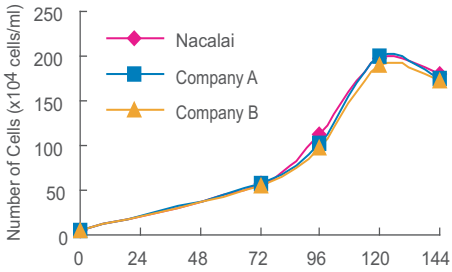
● MEM Non-Essential Amino Acids Solution (100x)

Composition: Non-Essential Amino Acids 10mM each

Non-Essential Amino Acids	(mg/ml)
L-Alanine	890
L-Asparagine,H_2O	1,500
L-Asparatic Acid	1,330
L-Glutamic Acid	1,470
Glycine	750
L-Proline	1,150
L-Serine	1,050

● 100mM-Sodium Pyruvate Solution (100x)

Pyruvic Acid Solution Culture Test



Cell : HeLa S3
Medium : DMEM (#08459-35) +1mM Sodium Pyruvate
Condition : 37℃ 10% CO_2

Ordering Information

Product Name	Storage	Product No.	PKG Size
L-Alanyl-L-glutamine	R	01102-82	25 g
200mmol/l L-Alanyl-L-glutamine Solution (100x)	F	04260-64	100 ml
200mM-L-Glutamine Stock Solution	F	16948-04	100 ml
1mol/l-HEPES Buffer Solution	R	17557-94	100 ml
MEM Non-Essential Amino Acids Solution (100x)	R	06344-14	20 ml
		06344-56	100 ml
100mM-Sodium Pyruvate Solution (100x)	R	06977-34	100 ml
apo-Transferrin from Human	R	34401-84	100 mg
		34401-55	500 mg

[Storage] R = Refrigerator, F = Freezer

● Antibiotics

Ordering Information

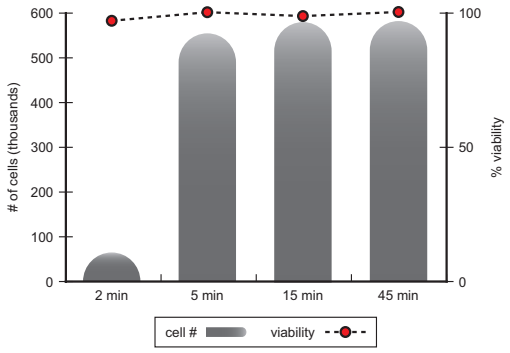
Product Name	Application	Storage	Product No.	PKG Size
Actinomycin D Solution (1mg/ml)	Other Antibiotics	F	00393-41	1 ml
Antibiotic-Antimycotic Mixed Stock Solution (100x)	Bacteria, Fungal, Yeast	F	02892-54	100 ml
Antibiotic-Antimycotic Mixed Stock Solution (100x) (Stabilized)	Bacteria, Fungal, Yeast	F	09366-44	100 ml
Colcemid Solution (10 µg/ml)	Other Antibiotics	R	09356-74	10 ml
G 418 Disulfate	Selection Antibiotics	RT	16512-36	250 mg
			16512-81	1 g
			16512-94	5 g
			16512-52	25 g
G 418 Disulfate	Selection Antibiotics	RT	08973-01	1 g
			08973-14	5 g
G 418 Disulfate Aqueous Solution	Selection Antibiotics	R	09380-86	20 ml
			09380-44	100 ml
Gentamicin Sulfate	Bacteria/Mycoplasma	R	08975-81	1 g
			08975-94	5 g
Gentamicin Sulfate Solution (10 mg/ml)	Bacteria/Mycoplasma	R	16672-04	10 ml
Hygromycin B	Selection Antibiotics	R	07296-66	100 mg
			07296-11	1 g
			07296-24	5 g
Hygromycin B Solution	Selection Antibiotics	R	09287-84	20 ml
Kanamycin Monosulfate	Selection Antibiotics	RT	08976-71	1 g
			08976-84	5 g
Mitomycin C Solution (1 mg/ml)	Other Antibiotics	F	20898-21	1 ml
Penicillin-Streptomycin Mixed Solution Penicillin 10,000 unit/ml, Streptomycin 10,000 µg/ml	Bacteria (Gram-positive bacteria/ Gram-negative bacteria)	F	26253-84	100 ml
Penicillin-Streptomycin-Glutamine Mixed Solution Penicillin 10,000 unit/ml, Streptomycin 10,000 µg/ml, L-Glutamine 29.2 mg/ml, Sodium Chloride 0.14%, Citrate Buffer Solution 10 mM	Bacteria (Gram-positive bacteria/ Gram-negative bacteria)	F	06168-34	100 ml
Penicillin-Streptomycin Mixed Solution (Stabilized) Penicillin 10,000 unit/ml, Streptomycin 10,000 µg/ml	Bacteria (Gram-positive bacteria/ Gram-negative bacteria)	F	09367-34	100 ml
Penicillin-Streptomycin Mixed Solution Penicillin 5,000 unit/ml, Streptomycin 5,000 µg/ml	Bacteria (Gram-positive bacteria/ Gram-negative bacteria)	F	26252-94	100 ml
Streptomycin Sulfate	Gram-negative bacteria	R	32204-34	5 g
			32204-92	25 g

[Storage] RT = Room temperature, R = Refrigerator, F = Freezer

Cell Dissociation Reagent: Accutase™

» **Gentle and efficient dissociation of any adherent cell line**
» **No mammalian or bacterial components are contained**
» **No neutralization steps by serum or trypsin inhibitors are required**
» **Works extremely well on embryonic and neuronal stem cells**

Application



Human MG63 Fibrosarcoma cells cultured in DMEM + 10% FBS were treated with Accutase.

Treatment resulted in rapid cell detachment, a single cell suspension, and high viability.

Accutase is gentle on cells; viability was 97 ± 3% even after 45 minutes in Accutase.

Cell Lines Cryopreserved with Accutase™

- hESCs
- vascular endothelial cells
- hepatocyte progenitors
- adherent CHO cells
- 293 cells
- 3T3
- HeLa
- M24 metastatic melanoma
- gliomas D54
- fibroblasts
- hepatocytes
- primary chick embryo neuronal cells
- adherent BHK cells
- L929 cells
- Vero
- NT2
- A375 metastatic melanoma
- HT1080 fibrosarcoma cells
- keratinocytes
- vascular smooth muscle cells
- bone marrow stem cells
- macrophages
- immortalized mouse testicular germ cells
- COS
- MG63
- gliomas U251
- Sf9 insect cells

Ordering Information

Product Name	Storage	Product No.	PKG Size
Accutase™	F	12679-54	100 ml

[Storage] F = Freezer

Related Products

Product Name	Storage	Product No.	PKG Size
Accumax	F	13766-74	100 ml
2.5g/l-Trypsin Solution	F	35555-54	100 ml
5.0g/l-Trypsin/5.3mmol/l-EDTA Solution	F	35556-44	100 ml
2.5g/l-Trypsin/1mmol/l-EDTA Solution	F	35554-64	100 ml
2.5g/l-Trypsin/1mmol/l-EDTA Solution, with Phenol Red	F	32777-44	100 ml
0.5g/l-Trypsin/0.53mmol/l-EDTA Solution	F	35553-74	100 ml
0.5g/l-Trypsin/0.53mmol/l-EDTA Solution, with Phenol Red	F	32778-34	100 ml
0.2g/l-EDTA Solution	R	14367-74	100 ml

[Storage] F = Freezer

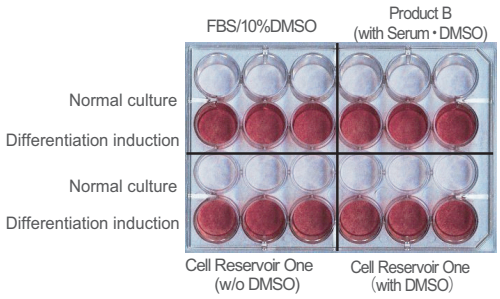
Serum-free Cell Freezing Media: Cell Reservoir One

Cell Reservoir One is a serum-free cell culture freezing medium, which contains a water-soluble glycoprotein sericin isolated from the silkworm cocoon as a major constituent. Sericin shows the same high efficacy of cryopreservation as with FBS, and reduces the cell toxicity of DMSO. As DMSO is known to have adverse effects on cellular functions, especially embryonic stem cells, Cell Reservoir One is available both with and without DMSO.

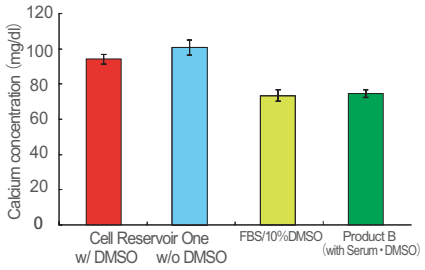
- » **No programmed freezer or special vessel necessary**
- » **Ready-to-use solution**
- » **Serum-free with no animal-derived components**
- » **High cell recovery and viability**

Application 1

Human Mesenchymal Stem Cell (hMSC): Bone Differentiation



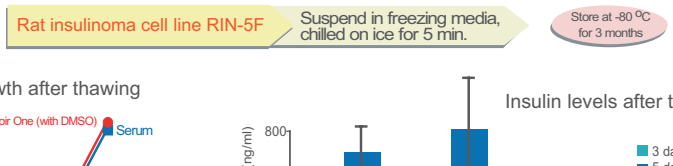
Cell Reservoir One maintains bone differentiation ability of hMSC.
Freezing condition: -80°C, 1 month

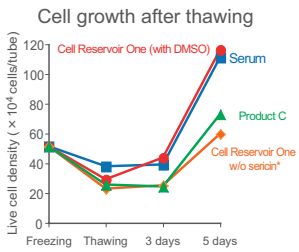


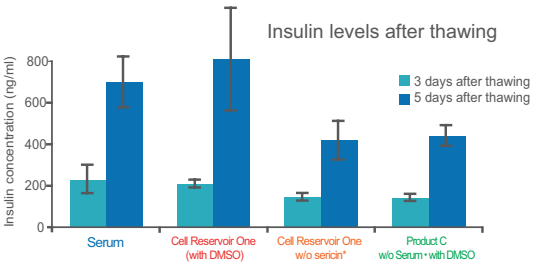
Condition:
(Left) Alizarin Red staining after 4 weeks differentiation induction of hMSC
(Right) Quantification of calcium deposition after differentiation induction

Application 2

Pancreatic Islet Transplantation Model







*The Sericin is removed from Cell Reservoir One

Data courtesy of FUKUI University

Procedure for Cell Freezing

1. Collect cells in logarithmic growth phase.
2. Suspend the cells in Cell Reservoir One (5 x 10^5 - 1 x 10^7 cells in 1 ML of Cell Reservoir One).
3. Dispense the suspension to a cryo-cell tube.
4. Store it at -80ºC without pre-freezing.

Ordering Information

Product Name	Storage	Product No.	PKG Size
Cell Reservoir One (with DMSO)	R	07485-44	100 ml
Cell Reservoir One (without DMSO)	R	07579-24	100 ml

[Storage] R = Refrigerator

ES/iPS cell Freezing Media: Cell Reservoir One, Vitrify

Vitrification has become an important alternative to standard slow programmable freezing methods for cryopreservation of primate ES cell lines including Human iPS cells because of the higher survival rates of cells after thawing. However, the vitrification requires an ultra-rapid freezing protocol, usually less than 15 seconds between making cell suspensions and freezing in liquid nitrogen. Cell Reservoir One (Vitrify) is a novel serum-free cell culture freezing medium for vitrification method, which contains a water-soluble glycoprotein sericin isolated from the silkworm cocoon as a major constituent. It provides high survival rates of primate cells, such as Monkey ES cells and Human iPS cells even with a longer freezing protocol; up to 60 second from the cell collection to freezing in liquid nitrogen.

**Cell Reservoir One (Vitrify) is produced in corporation with SEIREN. (Patent pending)*

» **High viability with a longer freezing protocol (up to 60 seconds)**

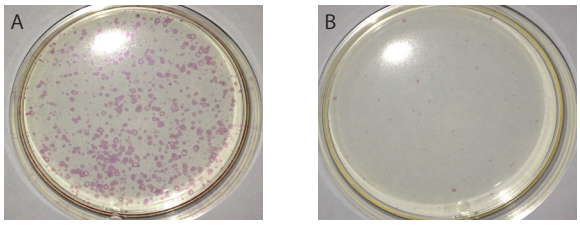
» **Low toxicity to cells (DMSO and acetamide free)**

Application

Comparison of survival rate of Human iPS cells (201B7 cell line*) *Takahashi, K. et al. *Cell*, Nov 30;**131**(5):861-872 (2007)

Freezing protocol: 60 seconds

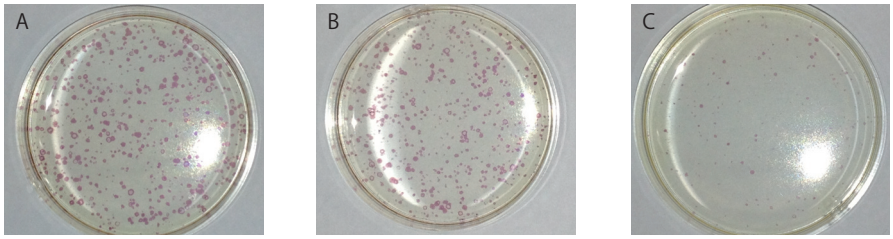
A: Cell Reservoir One (Vitrify) B: DAP213



Human iPS cells were cryopreserved for more than 2 weeks in Cell Reservoir One (Vitrify) or DAP213. Viability was detected using Alkaline Phosphatase 4 days after thawing. Cell Reservoir One (Vitrify) showed high survival rate, while most of cells in DAP213 were dead.

Freezing protocol: 15 seconds

A: Cell Reservoir One (Vitrify) B: DAP213 C: Company A



Human iPS cells were cryopreserved for more than 2 weeks in Cell Reservoir One (Vitrify), DAP213 or Company A's product. Viability was detected using Alkaline Phosphatase 4 days after thawing. Cell Reservoir One (Vitrify) showed the highest viability.

Data courtesy of a customer

Conclusion

Cell Reservoir One (Vitrify) showed high viability with both 15 and 60 seconds of freezing protocol. With 60 seconds protocol, the survival rate of cells in Cell Reservoir One (Vitrify) was significantly higher than other freezing media.

	Freezing Medium	The Number of Colony		
		Vitrification Method		Slow Freezing Method
		60 Seconds	15 Seconds	
A	Cell Reservoir One (Vitrify)	672	563	-
B	DAP213	37	479	-
C	Company A	-	-	172

Ordering Information

Product Name	Storage	Product No.	PKG Size
Cell Reservoir One, Vitrify	R	11325-62	25 ml

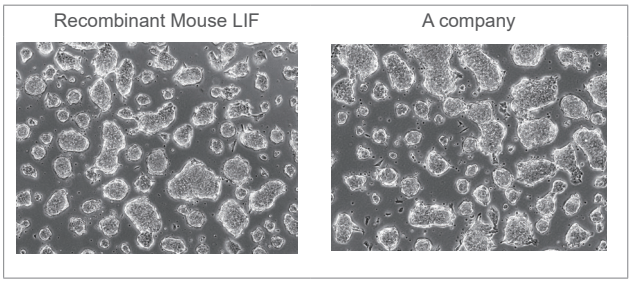
[Storage] R = Refrigerator

Recombinant Mouse and Human LIF for ES/iPS cells

Leukemia Inhibitory Factor (LIF) is a lymphoid factor that promotes long-term maintenance of pluripotent embryonic stem cells by suppressing spontaneous differentiation. Recombinant Mouse and Human Leukemia inhibitory factors (mLIF/hLIF) are produced in *E. coli.* They contain a single non-glycosylated polypeptide chain of 181 amino acids and have a molecular mass of 20kDa.

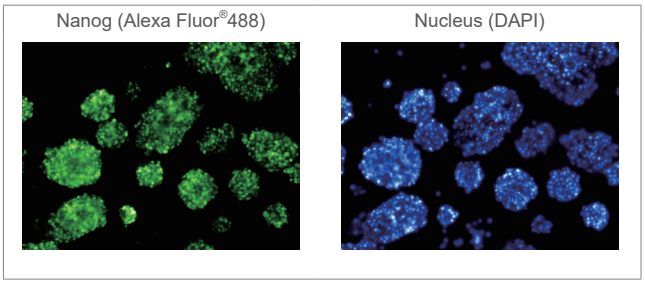
Applications

Cell culture of mouse ES (CGR8)



Recombinant Mouse LIF shows the same colony forming compared to A company's product.

Detection of undifferentiated markers (Nanog)



Nanog is detected in most of cells when applying this protein.

Data courtesy of Teruhisa Kawamura, MD, PhD, Career-Path Prootion Unit For Young Life Scientists , Kyoto University

Specification

		Recombinant Mouse LIF	Recombinant Human LIF
Quality evaluation	Bioavtivity	approx. 10^8 units/mg (tested by the M1 cell differentiation assay)	
	Undifferentiated state preservation	1000 units/ml (tested by mouse ES cell)	Not tested
Source		Escherichia Coli	
Purity (SDS-PAGE)		Greater than 99% (See Fig. 1 below)	Greater than 95% (See Fig. 2 below)
Formulation		0.22 µm filtered sterile liquid, PBS with 0.02% Tween® 20 and 1% BSA	
Storage		Maintain at 4°C up to 12 months. Freeze-thaw cycles should be avoided as it results in loss of activity	
Recommended concentration		10^7 units, identical 100 µg of pure protein, are sufficient to treat 10 L of ES cell.	$0.5x10^7$ units, identical 50 µg of pure protein, are sufficient to treat 5.0 L of stem cells including human embryonic stem cells, neural stem cells, hematopoietic stem cells, mesenchymal stem cells and induced pluripotent stem cells.

SDS PAGE of mLIF Sample

Fig.1 Recombinant Mouse LIF

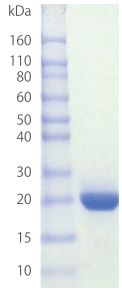
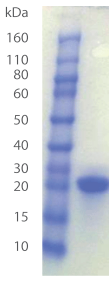


Fig.2 Recombinant Human LIF



Ordering Information

Product Name	Storage	Product No.	PKG Size
Recombinant Mouse LIF	R	NU0012-1	1.0 ml (10^6 units/ml)
		NU0012-2	1.0 ml (10^7 units/ml)
Recombinant Human LIF	R	NU0013-1	1.0 ml (10^6 units/ml)
		NU0013-2	1.0 ml (0.5 x 10^7 units/ml)

[Storage] R = Refrigerator

Recombinant LIF Proteins are produced by Nacalai USA, Inc.

Recombinant Human FGF-basic, Animal-free

Recombinant human FGF-basic (AA 1-155), also called as FGF-2 or bFGF, is a bioactive protein intended for use in cell culture applications. bFGF is a heparin-binding member of the FGF superfamily of molecules. It is involved in a number of biological processes including embryonic development, differentiation, survival, regeneration and migration. In addition, bFGF is a critical factor for growing embryonic stem cells in culture in an undifferentiated state.

Ordering Information

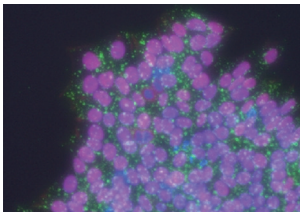
Product Name	Storage	Product No.	PKG Size
Recombinant Human FGF-basic, Animal-free	F	NU0005-1	10 µg
		NU0005-3	50 µg
		NU0005-6	1 mg

[Storage] F = Freezer

Recombinant Human FGF are produced by Nacalai USA, Inc.

Vitronectin-398™ (Xeno-free)

Human VTN (Vitronectin) is a 478 amino acid protein (1-19 = signal domain) that belongs to a member of the pexin family. It promotes cell adhesion and spreading, inhibits the membrane-damaging effect of the terminal cytolytic complement pathway, and binds to several serpin serine protease inhibitors. Recent publication from James Thomson's group indicated that coated recombinant human vitronectin protein alone benefits iPS cell generation when combined with E8 culture medium.



Human ES cells (H1) were cultivated in xeno-free medium (NutriStem™) on Vitronectin-398™ (Xeno-Free) coated 6-well plate for 10 generations, and staining With Oct4, TRA-81 and DAPI.

Reference

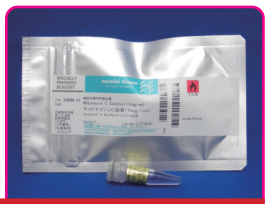
1. Guokai Chen, *et al. Cehmically defined conditions for human iPSC derivation and culture.* Nature Methods. **8**, 424-429 (2011)
2. Stefan R. Braam. *et al.* Recombinant Vitronectin is a Fucntionally Defined Substrate That Supports *Human Embryonic Stem Cell Self-Renewal via aVb5 integrin.* STEM CELLS. **26**(9) 2257-2265 (2008)

Ordering Information

Product Name	Storage	Product No.	PKG Size
Vitronectin-398™ (Xeno-free), Recombinant Human	F	NU0006	100 µg

Vitronectin-398 are produced by Nacalai USA, Inc

Mitomycin C Solution (1 mg/ml) for preparation of feeder cells



» **Ready-to-use: Sterility-tested for cell culture, does not solidify in freezer**

» **High stability: 2 years in freezer, protected from light**

Ordering Information

Product Name	Storage	Product No.	PKG Size
Mitomycin C Solution (1mg/ml)	F	20898-21	1 ml

Related Products

Product Name	Storage	Product No.	PKG Size
Y-27632	F	08945-71	1 mg
		08945-84	5 mg

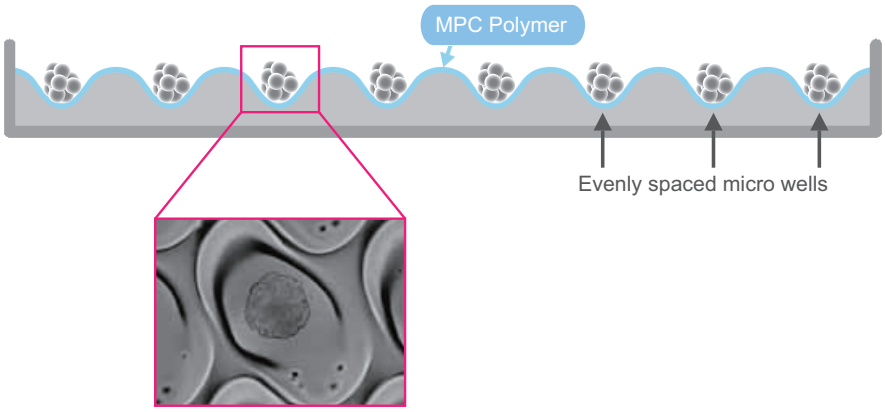
[Storage] F = Freezer

EZSPHERE®

Three dimensional (3D) cell culture systems have gained in popularity as invaluable tools in broad applications of cell biology. 3D multi-cellular cell aggregates (Spheroid) can be formed by using a low attachment culture surface. However, variability in forming spheroids has been a persistent problem. EZSPHERE® is specifically designed to form a large number of uniformly sized spheroids and embryoid bodies (EBs).

» **Coated with very low binding 2-methacryloyloxyethyl phosphorylcholine (MPC) polymer**
» **Form uniformly sized spheroids efficiently in the round shape wells**

Well Cross-section



Ordering Information

Product Name	Well Size (µm)	No. of Wells	Storage	Product No.	PKG Size
EZSPHERE® Dish 35 mm	Diameter: 400-500, Depth: 100-200	2,300/dish	RT	4000-900SP	10
EZSPHERE® Dish 60 mm	Diameter: 400-500, Depth: 100-200	5,300/dish	RT	4010-900SP	10
EZSPHERE® Dish 100 mm	Diameter: 400-500, Depth: 100-200	14,000/dish	RT	4020-900SP	10
EZSPHERE® 6-well Plate	Diameter: 400-500, Depth: 100-200	2,400/well	RT	4810-900SP	5
EZSPHERE® 96-well Plate	Diameter: 400-500, Depth: 100-200	80/well	RT	4860-900SP	5
EZSPHERE® Dish 35 mm Type 902	Diameter: 500, Depth: 200	2,300/dish	RT	4000-902SP	10
EZSPHERE® Dish 35 mm Type 903	Diameter: 800, Depth: 300	1,000/dish	RT	4000-903SP	10
EZSPHERE® Dish 35 mm Type 904	Diameter: 800, Depth: 400	600/dish	RT	4000-904SP	10

[Storage] RT = Room temperature

EZSPHERE® cell culture dishes are produced by AGC

EZ-Open Top FLASK™

» **Peel-off cover allows easy access to the culture surface**
» **High quality polystyrene canted-neck flask is tissue culture treated using corona discharge**
» **Filtered screw cap contains 2.0 µm hydrophobic membrane**
» **Peel-off cover is made of toxin-free PET/PE material**
» **Leak-proof with strong heat welding**

Ordering Information

Product Name	Capacity	Working Vol.	Storage	Product No.	PKG Size
EZ-Open Top FLASK 25 (Surface Area: 25 cm²)	70 ml	5 - 7.5 ml	RT	3173-025	20
EZ-Open Top FLASK 75 (Surface Area: 75 cm²)	270 ml	15 - 22.5 ml	RT	3193-075	20
EZ-Open Top FLASK 150 (Surface Area: 150 cm²)	600 ml	30 - 45 ml	RT	3183-150	20

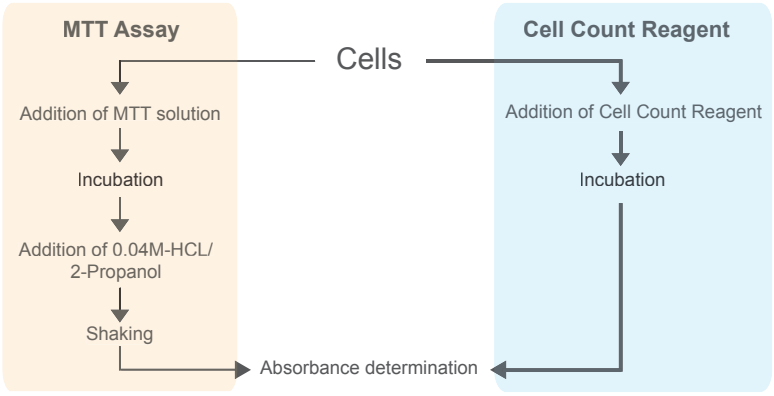
[Storage] RT = Room temperature

EZ-Open Top FLASK cell culture dishes are produced by AGC

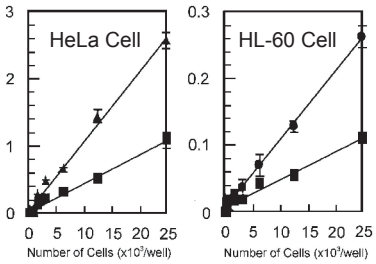
Cell Count Reagent SF, based on WST-8

» **More sensitivity than other water-soluble tetrazolium salts, such as XTT and MTS**
» **No radioisotope**
» **Ready-to-use**

Comparison of Assay Procedure with MTT and Cell Count Reagent SF



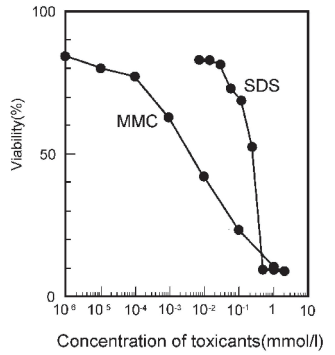
Application for Cell Proliferation Assay



1. Prepare a cell suspension using an appropriate culture media, and dispense 100 µl of cell suspension into each well of a 96-well plate after counting cells.
2. Pre-incubate the medium in CO_2 incubator.
3. Add 10 µl of Cell Count Reagent SF to each well.
4. Incubate the medium for 1-4 hours in the CO_2 incubator.
5. Measure the absorbance at 450 nm (calibration wavelength: 600 nm or more) by micro plate reader.

Incubation
Hela cells: 5% CO_2, 37ºC, 1 hour (■), 2 hours (▲)
HL-60: 5% CO_2, 37ºC, 1 hour (■), 3 hours (●)

Application for Cytotoxicity Assay



1. Prepare a cell suspension with 5,000 cells/well using an appropriate culture media, and dispense 100 µl of cell suspension into each well of a 96-well plate after counting cells.
2. Pre-incubate the medium in CO_2 incubator for 24 hours.
3. Add 10 µl of a compoud prepared to appropriate concentration into each well.
4. Incubate the medium for 48 hours in the CO_2 incubator.
5. Add 10 µl of Cell Count Reagent SF to each well.
6. Incubate the medium for 1-4 hours in the incubator.
7. Measure the absorbance at 450 nm (calibration wavelength: 600 nm or more) by micro plate reader.

Cell: Hela cells in DMEM (10% FCS)
Compounds applied: MMC (Mitomycin C)
SDS (Sodium Dodecylsulfate)
Treatment / incubation period: 5% CO_2, 37ºC, 48 hours / 5% CO_2, 37ºC, 2 hours
Wavelength: 450 nm (reference: 650 nm)

References

M. Ishiyama, Y. Miyazono, K. Sasamoto, Y. Ohkura, K. Ueno, *Talanta*, 44, 1299 (1997)
H. Tominaga, M. Ishiyama, F. Ohseto, K. Sasamoto, T. Hamamoto, K. Suzuki and M. Watanabe, *Anal. Commun*, 36 (2), 47 (1999)

Ordering Information

Product Name	Storage	Product No.	PKG Size
Cell Count Reagent SF	R	07553-15	500 tests
		07553-44	2500 tests

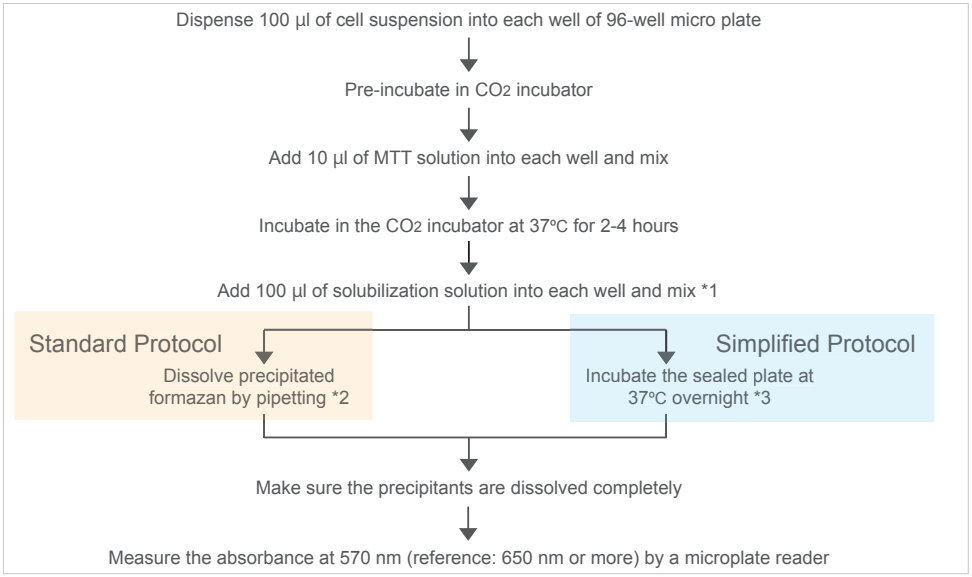
[Storage] R = Refrigerator

MTT Cell Count Kit, based on reduction of MTT

» **No radioisotope**

» **Ready-to-use**

Cell Proliferation Assay Procedure



*1 Mix well Solubilization Solution and media as serum proteins might appear as precipitants.

*2 Aviod hard pipetting and shaking for a long time as that might help Solubilization Solution volatilize and affect the assay result.

*3 Make sure the plate is sealed completely. Alternatively, use a CO_2 incubator at 37°C.

Ordering Information

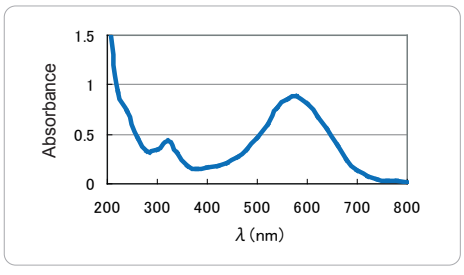
Product Name	Storage	Product No.	PKG Size
MTT Cell Count Kit	F	23506-80	1 Kit

[Storage] F = Freezer

0.5%-Trypan Blue Stain Solution

» **Ready-to-use**

Wavelength Range



Ordering Information

Product Name	Storage	Product No.	PKG Size
0.5%-Trypan Blue Stain Solution	R	29853-34	100ML

[Storage] R = Refrigerator

Medium for Bacteria, Plusgrow II

Plusgrow II is high performance medium for bacteria that offers easy procedures for weighing, dissolving and autoclave treatments.

» **Higher fungus density than conventional products**
» **High plasmid collection**

Comparison with Conventional Products

Bacteria growth test

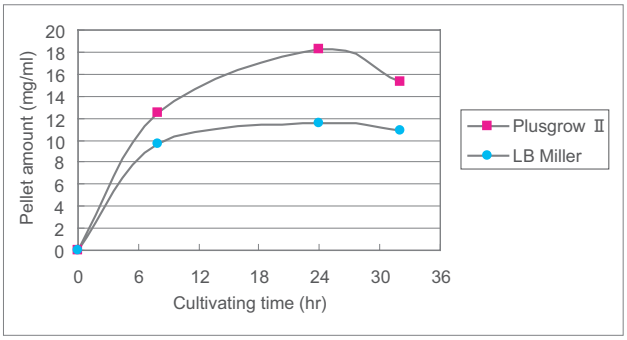


Figure 1. Bacteria growth curve
E. coli is first cultivated in ampicillin (50 µg/ml) then added to the medium at 37ºC and shaken. Then culture fluid is then centrifugally processed. Bacteria levels can then be evaluated by pellet amounts.
E. coli cell line: JM109
Plasmid: pGEM-3zf(+)

Plasmid collection test

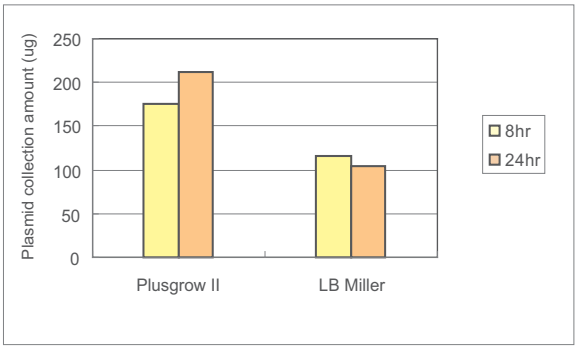


Figure 2. Plasmid collection amount (per 1ml of culture fluid)
Plasmid is collected and purified via the alkali-SDS method (containing phenol extract) following 8 and 24 hours of *E. coli* cultivation.

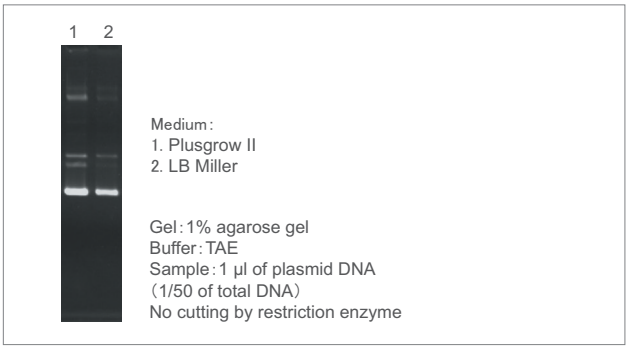


Figure 3. Electrophosis image of collection of plasmid (following 24 hours of cultivation)

Ordering Information

Product Name	Storage	Product No.	PKG Size
Plusgrow II (One package for 1L) Dissolve → Autoclave at 121 °C for 15 minutes	RT	08246-86	40 g
		08246-44	10 x 40 g
Plusgrow II Mesure 40 g → Dissolve in 1L → Autoclave at 121 °C for 15 minutes	RT	08202-04	100 g
		08202-75	500 g

Related Products

Product Name	Storage	Product No.	PKG Size
LB Agar, Lennox	RT	20067-85	500 g
LB Agar, Miller	RT	20069-65	500 g
		20069-94	2 kg
LB Broth, Lennox	RT	20066-95	500 g
		20066-24	2 kg
LB Broth, Miller	RT	20068-75	500 g
Agar, powder	RT	01028-85	500 g
Agar Purified, powder	RT	01162-15	500 g
Extract Yeast Dried	RT	15838-45	500 g
Tryptone	RT	35640-95	500 g

[Storage] RT = Room temperature

Gelling Agent for Plant Study: Gellan Gum

» **High Transparency**

Comparison Data with Agar Gel; Root growth observation

0.8% Agar Gel

0.2% Gellan Gum

These photos were taken on the 6th day.
Temperature: 27 °C
Light Period: 13 hours
Dark Period: 11 hours

Seeds of Komatsuna (Brassica rapa var. perviridis) were inoculated in petri dishes containing a MS medium with either 0.8% agar or 0.2% Gellan Gum under sterile conditions. The seedlings were transferred to plant boxes containing the same medium 5 days later.

Ordering Information

Product Name	Storage	Product No.	PKG Size
Gellan Gum	R	12389-96	50 g
		12389-54	250 g

[Storage] R = Refrigerator

Plant Culture Preservative and Biocide: PPM™

» **Universal product**

Plant Preservation Mixture (PPM™) is a robust broad-spectrum biocide formulated for use in plant tissue culture. PPM™ targets bacteria and fungi in plant tissue culture growth media as well as contaminated tissue. It affects key enzymes in the Krebs cycle and in the electron transport chain. Depending on the dose and the level of contamination, PPM™ is a biocidal component in plant culture medium. In addition, it may also function as a biostatic compound as a preventative measure. When diluted with plant growth media it is effective as a microbiocide (i.e. bactericide and fungicide) against non-human health pathogenic organisms component of liquid or semi-solid plant culture media.

PPM™ is effective for most seed baring plants - angiosperm, as well as gymnosperm, however, it is not recommended for use in ferns, mosses, algae and aquatic plants. Optimization may be required to maximize potency. While PPM™ is an excellent tool in the prevention and elimination of culture contamination it is not a substitute for asceptic laboratory techniques and appropriate air handling systems are recommended.

Ordering Information

Product Name	Storage	Product No.	PKG Size
PLANT PRESERVATIVE MIXTURE(PPM™)	R	26062-84	100 ml

[Storage] R = Refrigerator

PPM™ is a registered trademark of Plant Cell Technology.

Zymolyase® (from Arthrobacter Luteus)

Zymolyase®, produced by a submerged culture of Arthrobacter luteus[1], has strong lytic activity against living yeast cell walls[2],[3] to produce protoplast or spheroplast of various strains of yeast cells. An essential enzyme for the lytic activity of Zymolyase® is β-1,3-glucan laminaripentaohydrolase. It hydrolyzes linear glucose polymers with β-1,3-linkages and releases specifically laminaripentaose as the main and minimum product unit[4], [5], [10], [11]. There are two preparations of Zymolyase®, Zymolyase®-20T and Zymolyase®-100T, having lytic activity of 20,000 units/g and 100,000 units/g respectively. Zymolyase®-20T is ammonium sulfate precipitate while Zymolyase®-100T is a further purified preparation by affinity chromatography[9]. Lytic activity varies depending on yeast strain, growth stage of yeast, or cultural conditions[6-8]. Further information related to Zymolyase® can be obtained in the reference section below[12-16].

Specifications

Product Name		Zymolyase®-20T	Zymolyase®-100T
Form		Lyophilized Powder	
Purification		Ammonium Sulfate Precipitation	Affinity Chromatography
Activity		20,000 units/g	100,000 units/g
Essential enzyme		β-1,3-glucan laminaripentaohydrolase	
Other activities contained(*1)	β-1,3-glucanase	approx. 1.5 x 10^6 units/g	approx. 1.0 x 10^7 units/g
	protease	approx. 1.0 x 10^4 units/g	approx. 1.7 x 10^4 units/g
	mannanase	approx. 1.0 x 10^6 units/g	approx. 6.0 x 10^4 units/g
Contaminants	Amylase, Xylanase, Phosphatase	Trace amount	Not detectable
Optimum pH and Temp.		pH7.5, 35°C (for lysis of viable yeast cells) pH6.5, 45°C (for hydrolysis of yeast glucan)	
Stability	2°C	No loss of activity was found after storage for 1 year	
Heat stability	30°C	70% of the lytic activity is lost after storage for 3 months	90% of the lytic activity is lost after storage for 3 months
	60°C	Lytic activity is lost on incubation for 5 minutes	
Specificity (Lytic Spectrum)	*Ashbya, Candida, Debaryomyces, Eremothecium, Endomyces, Hansenula, Hanseniaspora, Kloeckera, kluyveromyces, Lipomyces, Metschnikowia, Pichia, Pullularia, Torulopsis, Saccharomyces, Saccharomycopsis, Saccharomycodes, Schwanniomyces, etc.*		

(*1) See reference, Kitamura, K., Kaneko, T., Yamamoto, Y., J. Gen. *Appl. Microbiol.*, **18**, 57 (1972) as to the definition of each enzyme units.

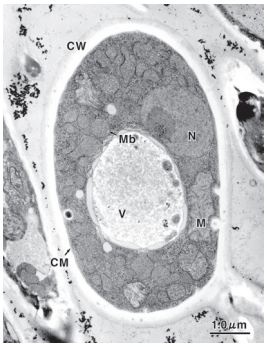
Unit Definition

One unit of lytic activity is defined as that amount which indicates 30% of decrease in absorbance at 800 nm (A_{800}) of the reaction mixture under the following condition.

[Reaction Mixture]

Enzyme solution	: 1 ml (0.05-0.1 mg/ml for Zymolyase®-20T) (0.012-0.024 mg/ml for Zymolyase®-100T)
Brewer's yeast cell suspension	: 3 ml (2 mg/ml)
1/15M Phosphate buffer	: 5 ml (pH7.5)
Distilled water	: 1 ml

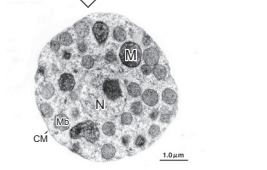
After incubation for 2 hours at 25°C with gentle shaking, A_{800} of the mixture is determined. When 60% of A_{800} decrease, equivalent to 2 units, is observed in the reaction system, the brewer's yeast cells are completely lysed, namely 1 unit of Zymolyase® lyses 3 mg dry weight of brewer's yeast.



Electron microscopical photo of yeast cell (Candida tropicalis)

CW: Cell Wall Mb: Microbody
CM: Cell Membrane N: Nucleus
M: Mitochondria V: Vacuole

Zymolyase® treatment



Data courtesy of Masako Osumi, Emeritus Professor at Nippon Women's University

Reference

1. Kaneko, T., Kitamura, K and Yamamoto, Y.: *J. Gen. Appl. Microbiol.*, **15**, 317 (1969)
2. Kitamura, K., Kaneko, T. and Yamamoto, Y.: *Arch. Biochem. Biophys.*, **145**, 402 (1971)
3. Kitamura, K., Kaneko, T. and Yamamoto, Y.: *J. Hen. Appl. Microbiol.*, **18**, 57 (1972)
4. Kitamura, K. and Yamamoto, Y.: *Arch. Biochem. Biophys.*, **153**, 403 (1972)
5. Kaneko, T., Kitamura, K. and Yamamoto, Y.: *Agric. Biol. Chem.*, **37**, 2295 (1973)
6. Kitamura, K., Kaneko, T. and Yamamoto, Y.: *J. Gen Appl. Microbiol.*, **20**, 323 (1974)
7. Kitamura, K. and Yamamoto,.: *Agric. Biol. Chem.*, **45**, 1761 (1981)
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13. Iizuka Masaru, Torii Yasuhiko, Yamamoto Takehiko: *Agric. Biol. Chem.*, **47** (12), 2267 (1983)
14. Shibata Nobuyuki, Kobayashi Hidemitsu, tojo Menehiro, Suzuki Shigeo: *Arch. Biochem. Biophys.*, **251**(2), 697 (1986)
15. Iijima Y., Yanagi S. O.: *Agric. Biol. Chem.*, **50** (7), 1855 (1986)
16. Herrero Enrique, Sanz Pascual. Sentandreu Rafael: *J. Gen. Microbiol.*, **133** (10), 2895 (1987)

Ordering Information

Product Name	Storage	Product No.	PKG Size
Zymolyase® 20T	R	07663-91	1 g
Zymolyase® 100T	R	07665-55	500 mg

[Storage] R = Refrigerator

Cell Lysis Solution: RIPA Buffer

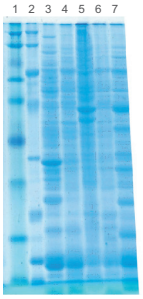
RIPA Buffer is a ready-to-use solution containing a variety of surfactants and protease inhibitors. Proteins lysed with RIPA Buffer can be used in western blotting, ELISA or immunoprecipitation testing regimes.

- » **Ready-to-use**
- » **Contains protease inhibitors**
- » **Unmixes SDS solution for immunoprecipitation**
- » **Applicable BCA protein assay without buffer exchange**

Applications

Electrophoresis

Extraction: Wash 100 mg of tissue with cold PBS. Add 300 µl of RIPA Buffer and leave on ince for 30 minutes.

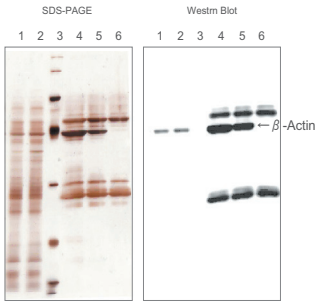


1. Pre-stained Protein Markers (#02525-35)
2. Protein Markers (#29458-24)
3. Mouse liver w/o SDS
4. Mouse kidney w/o SDS
5. Mouse stomach w/o SDS
6. Mouse brain w/o SDS
7. Mouse heart extracted w/ SDS

Detection: CBB Stain One (#04543-51)

Immunoprecipitation and Western Blot

Etraction: Add Jurkat Cell 1.0 x 10^7 to 1ml of RIPA Buffer, and on ice for 15 minutes.



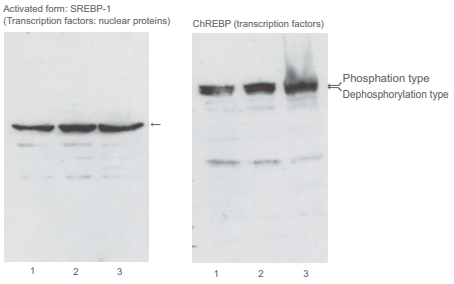
Sample: Jurkat Cell
1st antibody: Anti-β-Actin (C4) (Mouse), monoclonal antibody (#SC-47778)
2nd antibody: Anti-mouse IgG (Goat) HRP Tag (#SC-2005)

Left figure: Stained with Sil-Best Stain One (#06865-81)
Right figure: Detected with Chemi-Lumi One L (#07880-70)

Lane
1: Cell extracion w/o SDS
2: Cell extracion w/ SDS
3: Protein Markers (10×) (#29458-24)
4: Cell extracion w/o SDS, and immunoprecipitated
5: Cell extracion w/ SDS, and immunoprecipitated
6: Agarose control

Western Blot

Detection of Transcription Factors (SREBP-1 and ChREBP)



Blocking: Blocking One (#03953-95)
Detection: Chemi-Lumi One L (#07880-70)

<Conclusion>
RIPA buffer offers efficient extraction of proteins such as cytoplasm, or the nucleus of an organelle, which were previously hard to extract.

Data courtesy of Dr. Tatsuya Moriyama, Faculty of Agriculture, Department of Applied Biological Chemistry, Kinki University

Components

Reagent Name	Volume	Quantity	Package
RIPA Buffer with Protease Inhibitor Cocktail, without SDS (10x)	2 ml	5 bottles	Brown tube
SDS Solution (1% SDS)	2 ml	5 bottles	White tube

Adjustment of 1x solution (with SDS):

50mmol/l Tris-HCl Buffer (pH 7.6), 150mmol/l NaCl, 1% Nonidet P40, 0.5% Sodium Deoxy Cholate, Protease Inhibitor Cocktail (1x) (EDTA free), (0.1% SDS)

Ordering Information

Product Name	Storage	Product No.	PKG Size
RIPA Buffer	F	08714-04	1 set

[Storage] F = Freezer

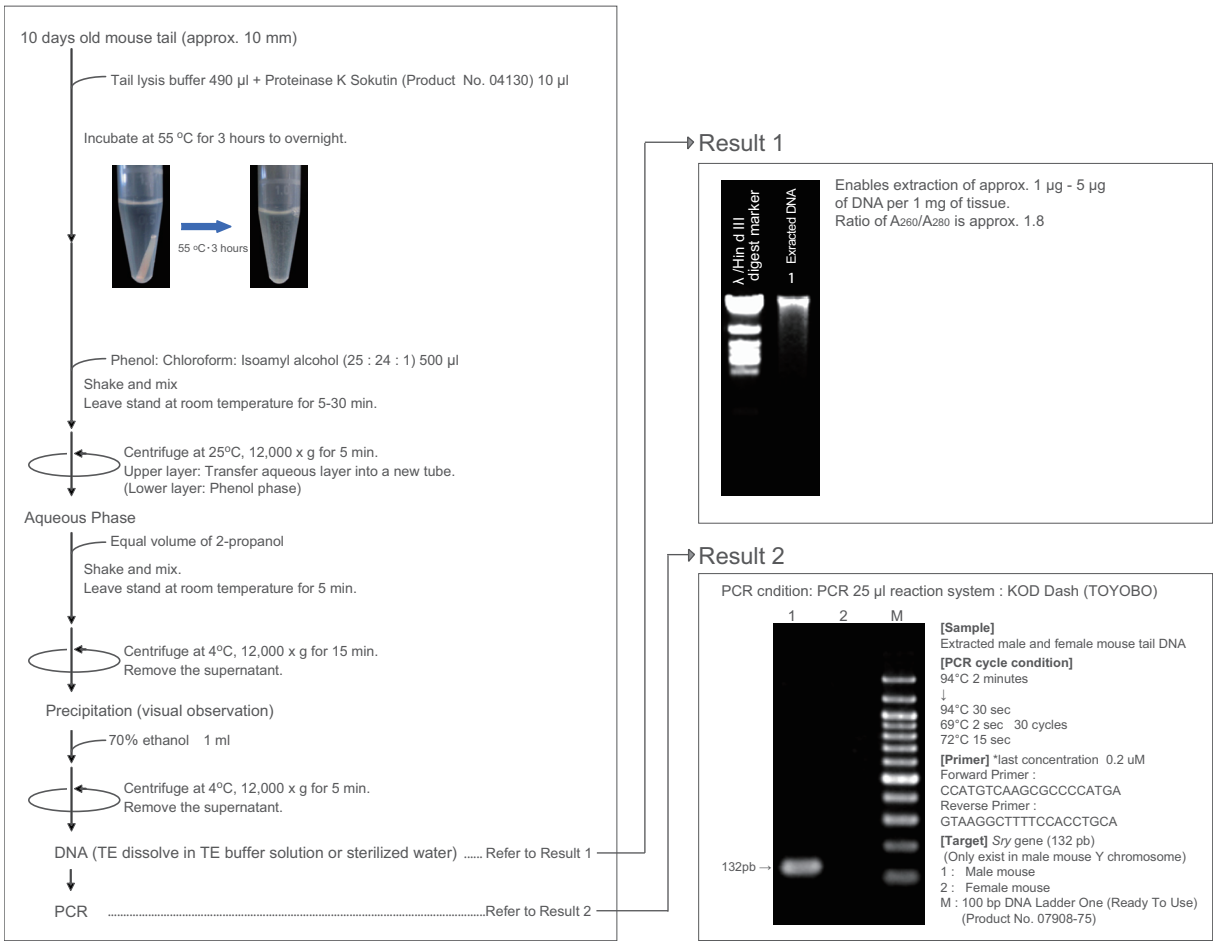
Tail Lysis Buffer

Tail Lysis Buffer is ready-to-use solution that enables simple genotyping procedure.

» **Ready-to-use solution**
» **DNase, RNase free**

Application: Genotyping of mouse tail

Procedure



Sry gene (132 bp), which only exists in male mouse Y-chromosomes was increased in male derived DNA, but was not increased in female derived DNA. The result shows that PCR operates efficiently.

Ordering Information

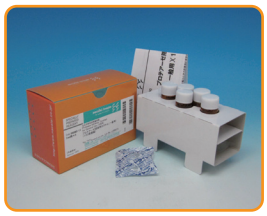
Product Name	Storage	Product No.	PKG Size
Tail Lysis Buffer	RT	06169-95	500 ml

[Storage] RT = Room temperature

Protease Inhibitor Cocktail

Inhibition of intra and extra cellular proteases is vital to purify and collect the expressed proteins. Saving trouble of finding adequate inhibitors, a wide range of proteases are inhibited by the Protease Inhibitor Cocktail.

» **Contains inhibitors for a variety of protease**
» **Available in 3 types; General use, Mammalian cell and tissue and EDTA free**



Composition of Each Protease Inhibitor Cocktail

Inhibitors	Target Protease	#04080-11	#03969-21	#25955-11
4-(2-Aminoethyl) benzenesulfonyl fluoride hydrochloride (AEBSF)	Serin protease	✔	✔	✔
Aprotinin	Serin protease and Esterase	✔	✔	✔
E-64	Cysteine protease	✔	✔	✔
Leupeptin hemisulfate monohydrate	Cysteine protease and Trypsin-like protease	✔	✔	✔
Disodium dihydrogen ethylenediaminetetraacetate dihydrate	Metalloprotease	✔		
Bestatin	Aminopeptidase and Leucine aminopeptidase			✔
Pepstatin A	Aspartic protease			✔

Reference

1. Okada, S. *et al. The Journal of Cellular Physiology* **226**(2), 552-558 (2011)
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3. Iyama, T. *et al. Nucl. Acids Res.* **38**(14), 4834-4843 (2010)
4. Kimura, Y. *et al. Cancer Research* **70**(2), 501-511 (2010)
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6. Hagiwara B *et al. J. Biochem.*, **45**, 185-194 (1958)

Ordering Information

Product Name	Storage	Product No.	PKG Size
Protease Inhibitor Cocktail for General Use (100x)	F	04080-11	5 x 1 ml
Protease Inhibitor Cocktail (EDTA free) (100x)	F	03969-21	5 x 1 ml
Protease Inhibitor Cocktail for Use with Mammalian Cell and Tissue Extracts	F	25955-11	5 x 1 ml

[Storage] F = Freezer

Phosphatase Inhibitor Cocktail

Phosphatase Inhibitor Cocktail is a mixture of several inhibitors to protect valuable proteins from dephosphorylation. The product preserves phosphorylated proteins existing in small quantity in cells and tissues.

» **Contains 6 kinds of phosphatase inhibitors for different targets**
» **100 times concentrated stock solution**
» **Compatible with protein assay**
» **Ready-to-use**

Composition of Each Phosphatase Inhibitor Cocktail

Inhibitors	Target Phosphatase	#07575-51 EDTA free	#07574-61
Sodium orthovanadate (V)	Tyrosine phosphatase and Alkaline Phosphatase	✔	✔
Disodium molybdate (VI) dihydrate	Acid phosphatase	✔	✔
Sodium (+) -tartrate dihydrate	Acid phosphatase	✔	✔
Imidazole	Alkaline Phosphatase	✔	✔
Sodium fluoride	Acid phosphatase	✔	✔
b-Glycerophosphoric acid disodium salt	Serine-threonine phosphatase	✔	✔
tetra-Sodium ethylenediaminetetraacetate	Alkaline Phosphatase		✔

* 100 times concentrated aqueous solution

Comparison Data

Figure 1.
The detection of phosphorylated proteins in Hela cells with Anti-p-Thr antibody

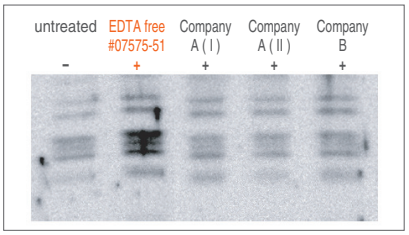


Figure 2.
The phosphatase inhibition efficiency assayed by fluorescence labeled p-Tyr peptide substrate

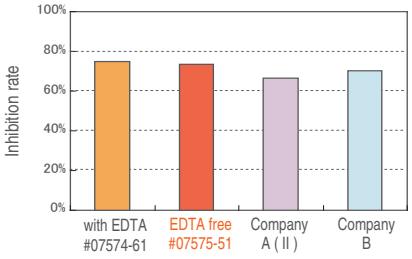
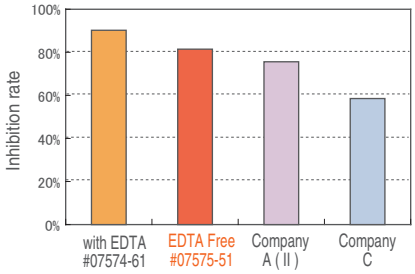


Figure 3.
The phosphatase inhibition efficiency assayed using p-nitrophenylphosphoric acid



Reference

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2. Selamat, W. *et al. Neuroscience Letters* **450**(2), 163-166 (2009)
3. Saito, T. *et al. Biochemical and Biophysical Research Communications* **357**(2), 371-376 (2007)
4. Murakami, Y. *et al. J. Biochem.*, **141**, 401-410 (2007)
5. Takenaga, M. *et al. J. Cell Sci.*, **120**, 2078-2090 (2007)

Ordering Information

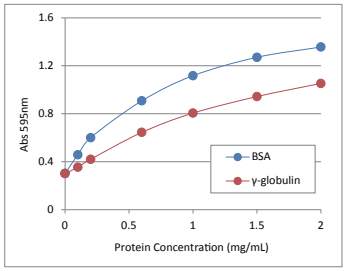
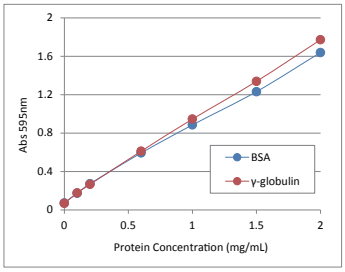
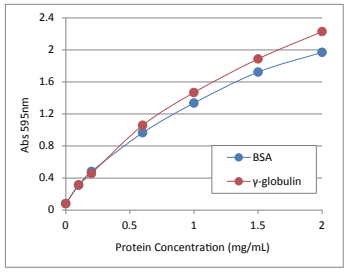
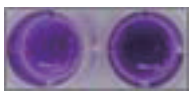
Product Name	Storage	Product No.	PKG Size
Protease Inhibitor Cocktail (EDTA free) for General Use (100x)	R	07575-51	1 ml
Protease Inhibitor Cocktail (100x)	R	07574-61	1 ml

[Storage] R = Refrigerator

Determination of Protein Concentration; Protein Assay

The protein assay is one of the most important key techniques in Proteomics. To determine protein concentration, three products with spectrophotometric method are availble as follows.

Comparison of Each Method

Assay Method	Bradford	BCA	Lowry
Product Name	Protein Assay CBB Solution	Protein Assay Bicinchoninate Kit	Protein Assay Lowry Kit
			
Linearity			
	+	+++	++
Convenience	+++	++	+
Absorbance	595 nm	562 nm	750 nm
Incompatible with	Detergents	Reducing Agents	Reducing Agents
	Condition: Mixing BSA (left: 0 mg/ml, right: 1 mg/ml) and each substance described in the column left below		
Incubate with Water			
Incubate with 0.1% SDS			
Incubate with 1 mM DTT			
Incubate with 0.1% SDS and 1 mM DTT			
Remarks	For protein samples containing detergents, BCA assay method or removal of detergents by CBB Clean Up Kit (Prod No. 11611) is helpful.	For protein samples containing reducing agents, the Bradford method is useful.	For protein samples containing reducing agents, the Bradford method is useful.

Ordering Information

Product Name	Storage	Product No.	PKG Size
Protein Assay CBB Solution (Ready To Use)	RT	11617-71	1 L
Protein Assay Bicinchoninate Kit	RT	06385-00	1 kit
Protein Assay Lowry Kit	RT	29470-60	1 kit

[Storage] RT = Room temperature

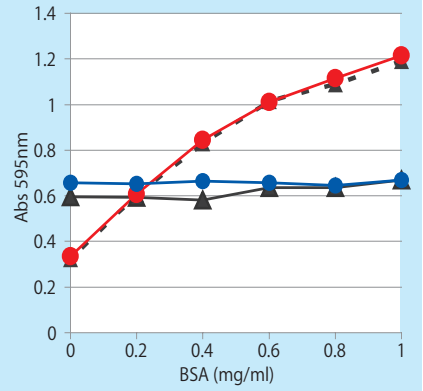
Protein Assay CBB Clean Up Kit

» **Get rid of interfering substances within 5 minutes**

» **Designed for the Bradford protein assay**

Comparison data of determination of BSA concentration with competitor's clean up kit

Protein Assay CBB Clean Up Kit is helpful to get rid of reducing agents and detergents that cause interfering with the Bradford assay, and enables better quantitative assays compared to the competitor's clean up kit.



Internal Control：BSA in water
No clean up：BSA in the Sample Buffer
Clean up with Nacalai's kit : BSA in the Sample Buffer
Clean up with Competitor's kit : BSA in the Sample Buffer

Sample Buffer Component：
62.5mM Tris-HCl pH6.8, 2%SDS, 10% Glycine, 5% 2-Mercaptoethanol, 0.005% BPB

Components

Reagent Name	Volume	Quantity
Solution A	2.5 ml	1 bottle
Solution B	2.5 ml	1 bottle
Solution C *Add 185 ml of ethanol (99.5%) into Solution C bottle, and mix it thoroughly	80 ml	2 bottles

Ordering Information

Product Name	Storage	Product No.	PKG Size
Protein Assay CBB Clean Up Kit	RT	11611-60	1 kit

Related products

Product Name	Storage	Product No.	PKG Size
Albumin, Bovine, Solution (2mg/ml) for Protein Assay	F	00653-31	10 x 1 ml

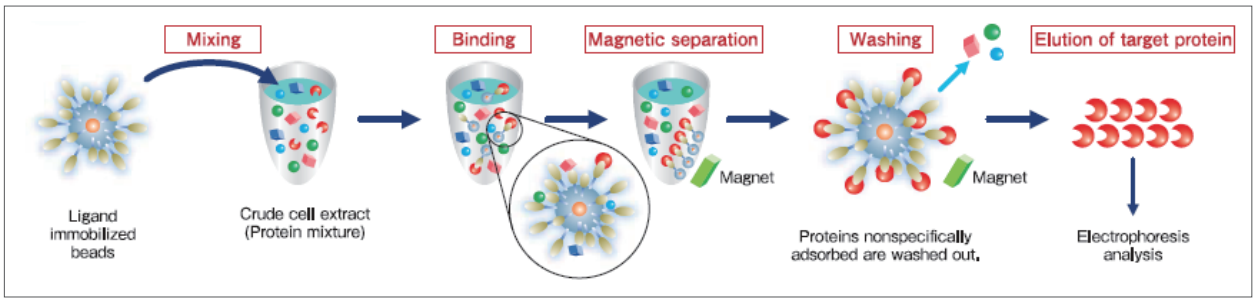
[Storage] RT = Room temperature, F = Freezer

High Performance Magnetic Nanoparticles: FG beads®

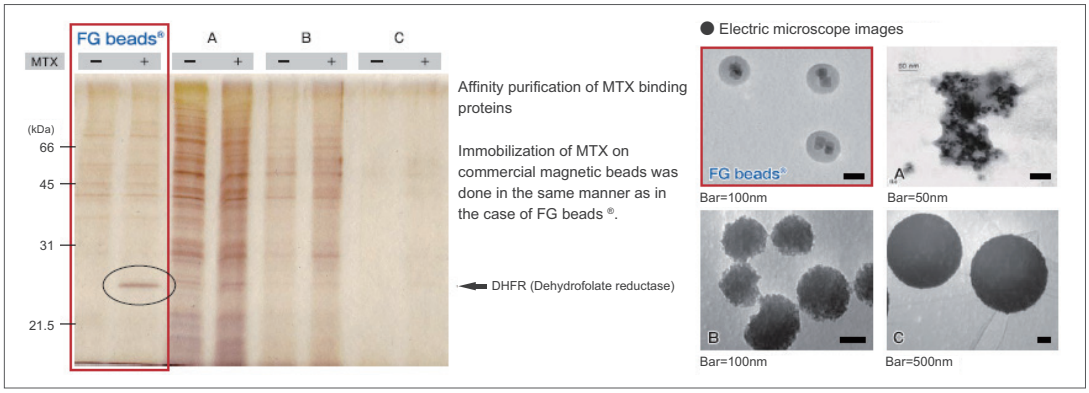
» **Excellent recovery of target proteins**
» **Extremely low non-specific binding**
» **High stability in organic solvents**

The FG beads developed by Tokyo Institute of Technology consists of ferrite nanoparticles coated firmly with a polymer layer and its diameter is appox. 200 nm. The FG beads are used as carriers for affinity purification of target proteins.[1)]

Purification Process



Comparison with Other Magnetic Beads [2)]



1. *S. Sakamoto et al., Chem. Rec. 9 (2009) 66*
2. *K. Nishio et al., Colloids Surfaces. B. 64 (2008) 162*

Ordering Information

Product Name	Storage	Product No.	PKG Size
Plain beads	R	TAS8848 N1010	10 mg
Linker beads (Epoxy beads)	R	TAS8848 N1110	5 mg
NH_2 beads	R	TAS8848 N1130	5 mg
COOH beads	R	TAS8848 N1140	5 mg
NHS beads	R	TAS8848 N1141	5 mg
Azide beads	R	TAS8848 N1160	5 mg
Streptavidin beads	R	TAS8848 N1170	5 mg
NeutrAvidin™ beads	R	TAS8848 N1171	5 mg
Protein A beads	R	TAS8848 N1172	5 mg
Protein G beads	R	TAS8848 N1173	5 mg
Magnetic Stand (for 1.5 ml tube)	RT	TA4899N12	1 ea
Magnetic Stand (for 15 ml tube)	RT	TA4899N20	1 ea
Magnetic Stand (for 50 ml tube)	RT	TA4899N30	1 ea

[Storage] RT = Room temperature, R = Refrigerator

FG beads® are produced by Tamagawa Seiki Co., Ltd.

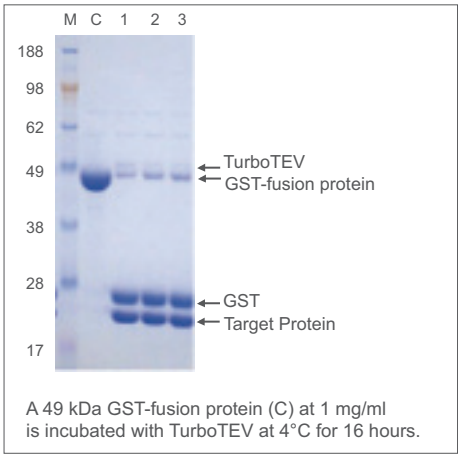
TurboTEV Protease & Turbo3C Protease

» **Both GST and His tags to facilitate its removal from the digested protein sample**

» **Activity over a broad temperature (4°C to 37°C) and pH (6.5 to 8.5) range**

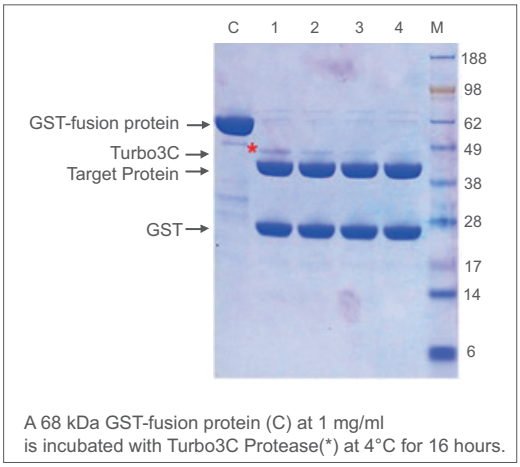
Application

TurboTEV Protease



A 49 kDa GST-fusion protein (C) at 1 mg/ml is incubated with TurboTEV at 4°C for 16 hours.

Turbo3C Protease



A 68 kDa GST-fusion protein (C) at 1 mg/ml is incubated with Turbo3C Protease(*) at 4°C for 16 hours.

GST-fusion protein (C) at 1 mg/ml is incubated with TurboTEV or Turbo3C Protease at a ratio of (1) 1:50, (2) 1:100, (3) 1:200 (w/w) in a buffer of 25 mM Tris-HCl, pH 8.0, 150 mM NaCl, 14 mM 2-mercaptoethanol at 4°C for 16 hours.

Specification

	TurboTEV Protease	Turbo3C Protease
Molecular Weight	52 kDa	47 kDa
Cleavage Site	Glu-Asn-Leu-Tyr-Phe-Gln↓Gly	Leu-Glu-Val-Leu-Phe-Gln↓Gly-Pro
Enzymatic Activity	One unit cleaves >85% of 3 µg control substrate at 30°C for 1 h	One unit cleaves >95% of 100 µg control substrate at 4°C for 16 h
Concentration	20,000 units/ml	2,000 units/ml
Cleavage Condition	A broad temperature (4°C to 37°C) and pH (6.5 to 8.5) range	
Formulation	25 mM Tris-HCl(pH8.0), 50 mM NaCl, 1 mM TCEP, 50% Glycerol	

Ordering Information

Product Name	Storage	Product No.	PKG Size
TurboTEV (TEV Protease) 2 mg/ml	F	NU0102S	1,000 units (0.1 mg)
		NU0102M	10,000 units (1 mg)
		NU0102L	100,000 units (10 mg)
Turbo3C (HRV3C Protease) 2 mg/ml	F	NU0101S	1,000 units (1 mg)
		NU0101M	10,000 units (10 mg)

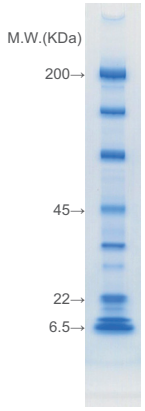
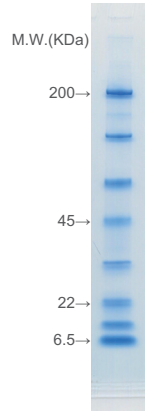
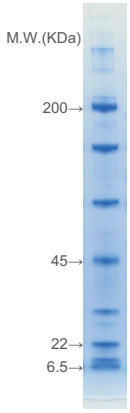
TurboTEV Protease & Turbo3C Protease are produced by Nacalai USA.

Bullet PAGE One Precast Gel

» **Only 10 minutes with 400 V**
» **High transfer efficiency of proteins on western blot membrane**
» **Works well with conventional Laemmli running buffer and sample buffer**
» **17-well gel is usable with multichannel pipet for sample loading**

Performance Comparison

Comparison of separation image with proposed electrophoresis time. Bullet PAGE One gel can produce an excellent separation image with the shortest electrophoresis.

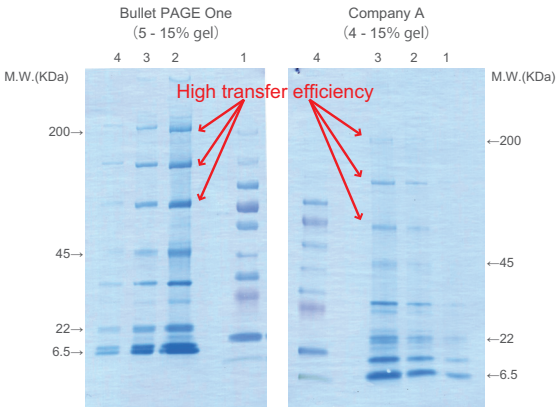
Product Name	Bullet PAGE One	Company A	Company B
Gel %	5-15%	4-15%	4-12%
Prod No.	13079-84	-	-
Running Time	11 min.	33 min.	50 min.
Separation Image			

<Condition>
Sample: Protein Markers(10 x)(Prod No. 29458-24), 5μl
Gel Staining: CBB Stain One (Prod No. 04543)
Voltage Constant: Bullet PAGE One: 400V
Company A and Company B: 200V

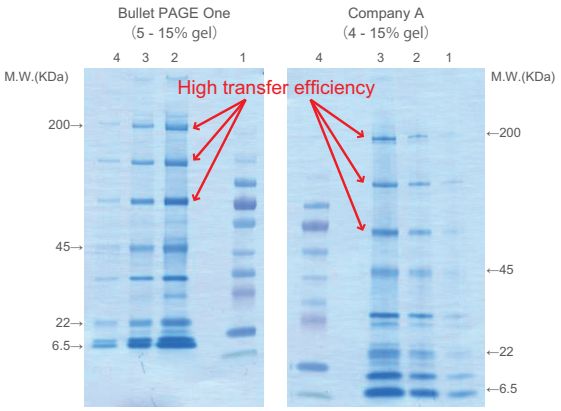
Comparison of protein transfer efficiency

Bullet PAGE One gel indicates obviously higher protein transfer efficiency than company A's, even though blotting time was only 10 min.

10V constant for 10 min.

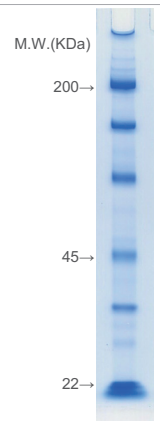
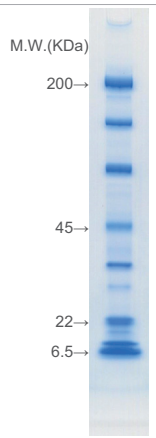
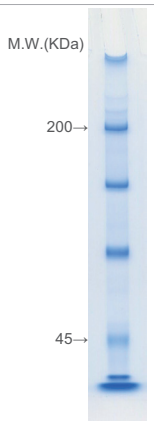
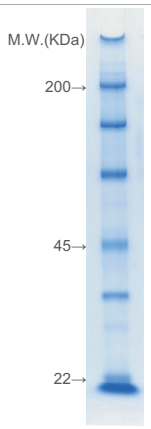


10V constant for 20 min.



<Condition>
Sample: 1. Protein Ladder One（Triple-color）(Prod No.：09547-74)
2. Protein Markers（3×）(Prod No.：29458-24) 2 μl
3. Protein Markers（1×）(Prod No.：29458-24) 2 μl
4. Protein Markers（1/3）(Prod No.：29458-24) 2 μl
Blotting: Semi-dry blotting with PVDF membrane by Semi-dry Blotting Buffer Solution for Western Blotting（Prod No.：30650-31）with 10 or 20 min. in 10 V constant
Detection: CBB Stain One（Prod No.：04543）

Gel types

Gel Type	Gradient Gel		Single Percentage Gel	
Gel %	5-11%	5-15%	6%	8%
Prod No. for 13-well for 17-well	13077-04 13078-94	13079-84 13080-44	13081-34 13082-24	13083-14 13084-04
Separation Image				

Product Specification

Glass Plate Size: W100mm×H80mm×T3.2mm
Gel Size: W80mm×H60mm×T1.0mm
Sample Well Configuration / Maximum Load Volume: 13-well / 40µl, 17-well / 28µl

Video

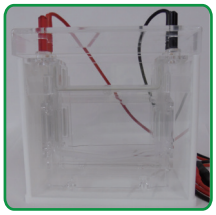
Electrophoresis video of Bullet PAGE One gel is accessible by visiting link below (YouTube).
http://www.nacalai.co.jp/information/movie/bullet.html

Ordering Information

Product Name	Storage	Product No.	PKG Size
Bullet PAGE One Precast Gel, 5-11%, 13 wells	R	13077-04	10 sheets
Bullet PAGE One Precast Gel, 5-11%, 17 wells	R	13078-94	10 sheets
Bullet PAGE One Precast Gel, 5-15%, 13 wells	R	13079-84	10 sheets
Bullet PAGE One Precast Gel, 5-15%, 17 wells	R	13080-44	10 sheets
Bullet PAGE One Precast Gel, 6%, 13 wells	R	13081-34	10 sheets
Bullet PAGE One Precast Gel, 6%, 17 wells	R	13082-24	10 sheets
Bullet PAGE One Precast Gel, 8%, 13 wells	R	13083-14	10 sheets
Bullet PAGE One Precast Gel, 8%, 17 wells	R	13084-04	10 sheets

[Storage] R = Refrigerator

Electrophoresis Tank for Bullet PAGE One Precast Gel



Specification

Size: 154W×88D×146H (mm)
Required Buffer Volume: 800 ml

Ordering Information

Product Name	Storage	Product No.	PKG Size
WEP-N Vertical Electrophoresis Tank	RT	WEP-N	1 Set

[Storage] RT = Room temperature

WIDE RANGE Gel Preparation Buffer (4x) for PAGE

Gradient gels offer a much wider separation range of proteins than single percentage gels. However, casting gradient gels is more difficult and labor intensive. WIDE RANGE Gel Preparation Buffer offers a gradient gel-like separation on a single percentage gel by simply mixing it with acrylamide/ bisacrylamide gel casting solution. The gel can be used with the common sample buffers and running buffers. It is also suitable for standard staining methods including CBB and silver staining.

» Simple casting procedure

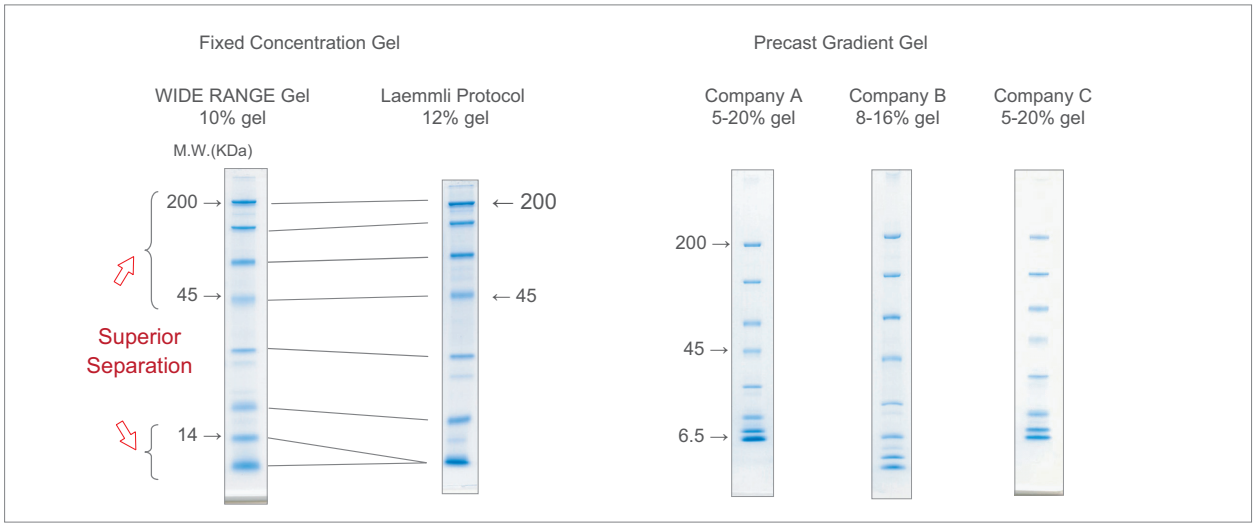
WIDE RANGE Gel Preparation buffer is a 4x concentrated neutral pH buffer. It can be used for preparation of both stacking gel and separation gel by replacing the Tris-HCl buffer in Laemmli buffer system.

» Improved stability and strength

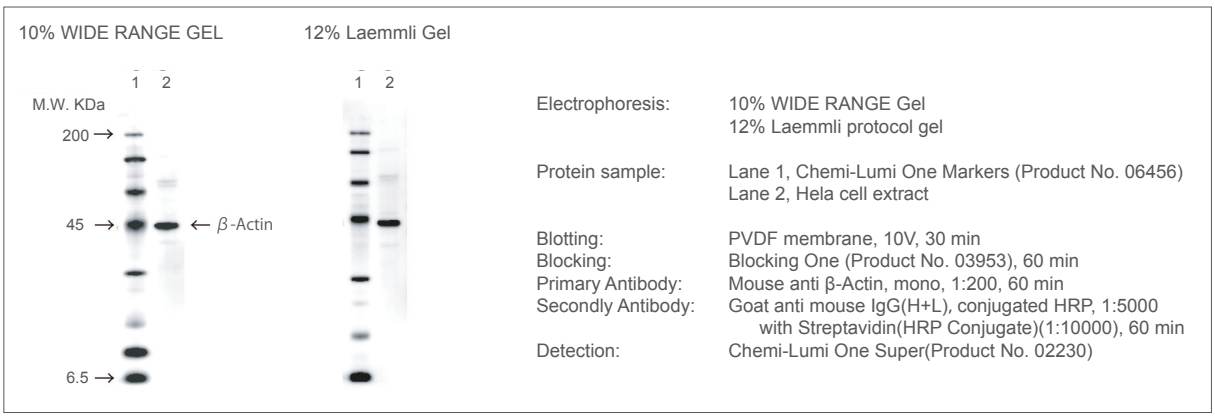
The incresed tensile strength allows easy handliing even a low percentage gel. The neutral pH buffer improves the stability of gel resulting in a longer shelf life than the gel with Laemmli buffer system.

» A wide separation range

WIDE RANGE Gel provides a much greater separation range than the gel casted with a conventional Laemmli buffer system.



Applicable for Western Blotting



Electrophoresis:	10% WIDE RANGE Gel 12% Laemmli protocol gel
Protein sample:	Lane 1, Chemi-Lumi One Markers (Product No. 06456) Lane 2, Hela cell extract
Blotting:	PVDF membrane, 10V, 30 min
Blocking:	Blocking One (Product No. 03953), 60 min
Primary Antibody:	Mouse anti β-Actin, mono, 1:200, 60 min
Secondly Antibody:	Goat anti mouse IgG(H+L), conjugated HRP, 1:5000 with Streptavidin(HRP Conjugate)(1:10000), 60 min
Detection:	Chemi-Lumi One Super(Product No. 02230)

Ordering Information

Product Name	Storage	Product No.	PKG Size
WIDE RANGE Gel Preparation Buffer (4x) for PAGE	R	07831-94	250 ml

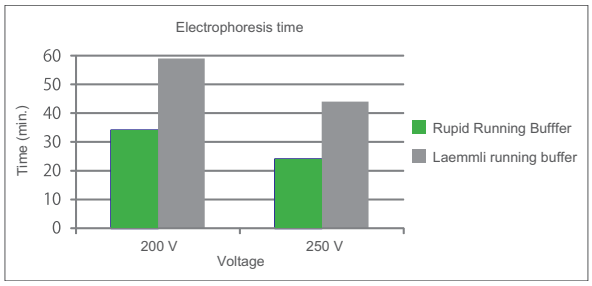
[Storage] R = Refrigerator

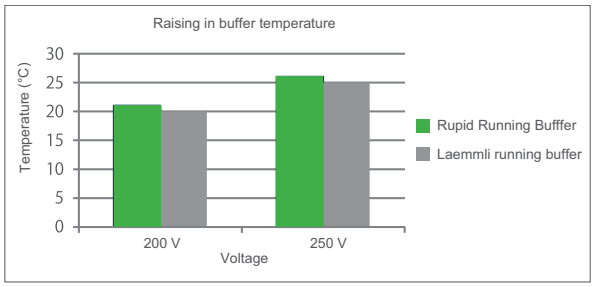
Rapid Running Buffer Solution

» **About 25 min. electrophoresis time with mini-gel at 250 V**
» **Just replace the Laemmli running buffer with this product**
» **High protein transfer efficiency to western blotting membrane**

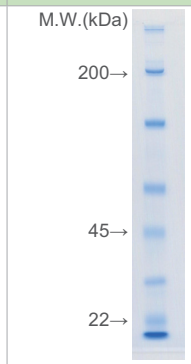
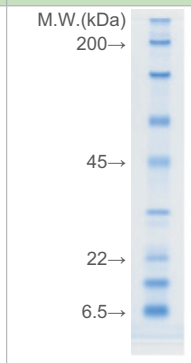
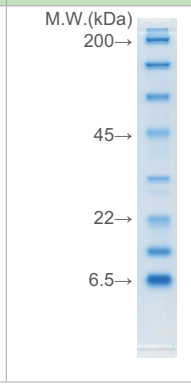
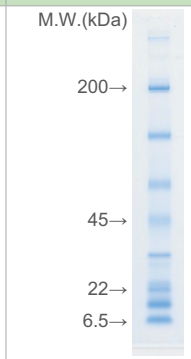
Comparison of electrophoresis time and rise in buffer temperature

Running proteins with this product shortens the electrophoresis time to about 60% compared to Laemmli running buffer, and its rising in buffer temperature is the almost same as Laemmli running buffer's.





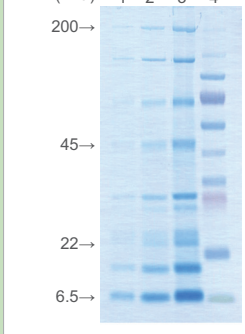
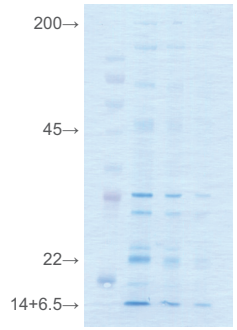
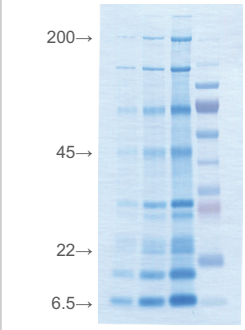
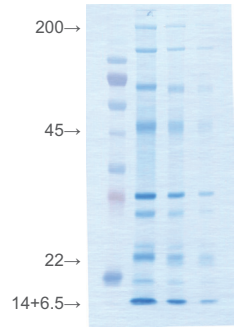
Separation patterns of Laemmli gel with Rapid Running Buffer

Gel concentration	6%	8%	10%	4-10%
Separation image				

Comparison of protein transfer efficiency to western blotting membrane

Due to lower gel concentration when Rapid Running Buffer Solution is used[*1], its protein transfer efficiency to a membrane is higher than the Laemmli running buffer's.

[*1] By casting a gel with 4% lower gel concentration than usual, its separation patterns can be made similar to the original's, e.g. separation patterns of 8% gel with Rapid Running Buffer Solution is about the same as 12% gel with Laemmli running buffer.

Gel concentration	8%	12%	8%	12%
Running buffer	Rapid Running Buffer	Laemmli running buffer	Rapid Running Buffer	Laemmli running buffer
Blotting time	10 min.		30 min.	
Membrane staining image				

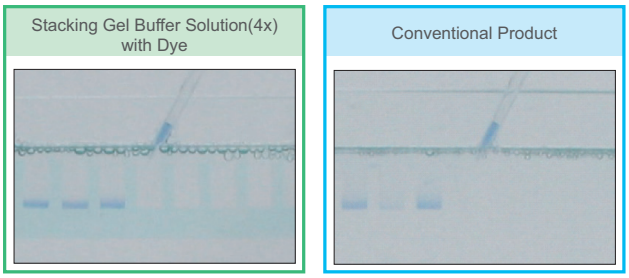
Ordering Information

Product Name	Storage	Product No.	PKG Size
Rapid Running Buffer Solution(20x) for SDS-PAGE	RT	12981-74	250ML

[Storage] RT = Room temperature

Stacking Gel Buffer Solution (4x) with Blue Dye

» **Easy to see well locations due to coloring stacking gel**



Wells are clearly confirmed on stacking gel prepared with Stacking Gel Buffer Solution with Dye

Ordering Information

Product Name	Storage	Product No.	PKG Size
Stacking Gel Buffer Solution(4x) with Dye for SDS-PAGE	R	09268-34	100 ml

[Storage] R = Refrigerator

Polyacrylamide Gel Casting Reagents

Product Name	Storage	Product No.	PKG Size
Acrylamides (monomer)			
Acrylamide (monomer), Purity, 99%	RT	00809-14	100 g
		00809-85	500 g
Acrylamide (monomer), Purity, 99%, Nuclease and Protease tested	RT	06114-24	100 g
		06114-95	500 g
		06114-11	1 kg
Acrylamide/Bis Mixed Solutions			
30(w/v)%-Acrylamide/Bis Mixed Solution (37.5:1)	R	06144-05	500 ml
30(w/v)%-Acrylamide/Bis Mixed Solution (29:1)	R	06141-35	500 ml
40(w/v)%-Acrylamide/Bis Mixed Solution (37.5:1)	R	06121-95	500 ml
40(w/v)%-Acrylamide/Bis Mixed Solution (29:1)	R	06119-45	500 ml
Crosslinking Agents			
N,N'-Methylenebisacrylamide, [BIS]	R	22402-02	25 g
N,N'-Methylenebisacrylamide, Purity, 99%, Nuclease and Protease tested	R	22407-52	25 g
Polymerization Initiators			
N,N,N',N'-Tetramethylethylenediamine TEMED]	RT	33401-72	25 g
		33401-14	100 g
Polymerization Promotors			
Ammonium Peroxodisulfate [APS]	R	02627-21	1 g
		02627-34	10 g
10 (w/v)%-Ammonium Peroxodisulfate Solution	F	02634-34	10 ml
Gel Buffer Solutions			
Separating Gel Buffer Solution (4x) for SDS-PAGE, pH8.8 Filtrated by 0.45 μm filter Components：1.5M-Tris-HCl, 0.4 (w/v)%-SDS	RT	30651-05	500 ml
Stacking Gel Buffer Solution (4x) with Dye for SDS-PAGE, pH6.8 Filtrated by 0.45 μm filter Components：0.5M-Tris-HCl, 0.4(w/v)%-SDS	R	09268-34	100 ml
Stacking Gel Buffer Solution (4x) for SDS-PAGE, pH6.8 Filtrated by 0.45 μm filter Components：0.5M-Tris-HCl, 0.4 (w/v)%-SDS	R	09267-44	100 ml
		32158-25	500 ml

Running Buffers

Product Name	Storage	Product No.	PKG Size
Pre-mixed Buffers			
Running Buffer Solution (10x) for SDS-PAGE,Tris-Glycine, Filtrated by 0.45 µm filter Components: 0.25 mol/l-Tris, 1.92 mol/l-glycine, 10 g/l-SDS	RT	30329-61 30329-74	1 L 5 L
Running Buffer Solution (10x) for PAGE,Tris-Glycine, Filtrated by 0.45 µm filter Components: 0.25 mol/l-Tris, 1.92 mol/l-glycine	RT	30340-91	1 L
Buffer Adjusting Reagents			
Tris(hydroxymethyl)aminomethane, Purity, 99%	RT	35410-34	100 g
Tris(hydroxymethyl)aminomethane, Purity, 99.9%, Nuclease and Protease tested	RT	35434-76 35434-05 35434-21	100 g 500 g 1 kg
Sodium Lauryl Sulfate [Sodium Dodecyl Sulfate;SDS, Purity, 99%	RT	31607-52 31607-94 31607-65	25 g 100 g 500 g
Sodium Lauryl Sulfate granular [Sodium Dodecyl Sulfate;SDS] Purity, 99%, Solids (granular)	RT	02873-62 02873-04 02873-75	25 g 100 g 500 g
Sodium Lauryl Sulfate [Sodium Dodecyl Sulfate;SDS] Purity, 99.5%	RT	30400-72 30400-85	25 g 500 g
10%-SDS Solution [10%-Sodium Lauryl Sulfate Solution]	RT	30562-04	100 ml
Glycine	RT	17128-14	100 g
Glycine, Nuclease and Protease tested	RT	17141-24 17141-95	100 g 500 g
Tricine {N-[Tris(hydroxymethyl)methyl]glycine}	RT	34713-62 34713-04	25 g 100 g
Tricine {N-[Tris(hydroxymethyl)methyl]glycine} Nuclease and Protease tested	RT	02437-24	100 g

[Storage] RT = Room temperature, R = Refrigerator, F = Freezer

Sample Buffer Solution for SDS-PAGE (6x)

- **Suitable for low concentration protein sample adjustment**
- **No precipitation in the refrigerator**
- **Two types of reagents (with and without reducing agent)**

Ordering Information

Product Name	Storage	Product No.	PKG Size
Sample Buffers			
Sample Buffer Solution with Reducing Reagent (6x) for SDS-PAGE pH6.8 Filtrated by 0.45 µm filter, Components: 0.375M-Tris-HCl, 0.03(w/v)%-BPB, glycerin, anion surface acting agent and reducing agent	R	09499-14	5 ml
Sample Buffer Solution without Reducing Reagent (6x) for SDS-PAGE pH6.8 Filtrated by 0.45 µm filter, Components: 0.375M-Tris-HCl, 0.03(w/v)%-BPB, glycerin and anion surface acting agent	R	09500-64	5 ml
Sample Buffer Solution with 2-ME (2x) for SDS-PAGE pH6.8 Filtrated by 0.45 µm filter, Components: 0.125M-Tris-HCl, 4(w/v)%-SDS, 20(v/v)%-glycerin, 0.01(w/v)%-BPB, 10(v/v)%-2-ME	R	30566-22	25 ml
Sample Buffer Solution without 2-ME (2x) for SDS-PAGE pH6.8 Filtrated by 0.45 µm filter, Components: 0.125M-Tris-HCl, 4(w/v)%-SDS, 20(v/v)%-glycerin, 0.01(w/v)%-BPB	R	30567-12	25 ml
Reducing Agent			
2-Mercaptoethanol	RT	21418-42 21418-84 21418-55	25 g 100 g 500 g
Dithiothreitol	R	14112-36 14112-81 14112-94 14112-52	100 mg 1 g 5 g 25 g
Tris (2-carboxyethyl) phosphine Hydrochloride (TCEP)	R	07277-61	1 g
Tracking Dyes			
Bromophenol Blue	RT	05808-61 05808-32	1 g 25 g
Others			
Glycerol Nuclease and Protease tested	RT	17045-94 17045-65	100 ml 500 ml

[Storage] RT = Room temperature, R = Refrigerator

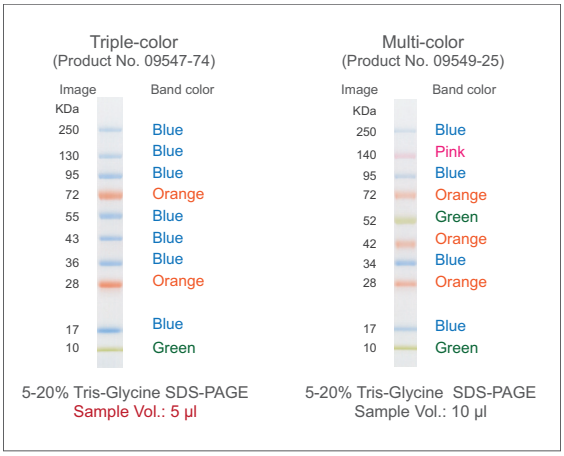
Molecular Weight Markers

● Protein Ladder One

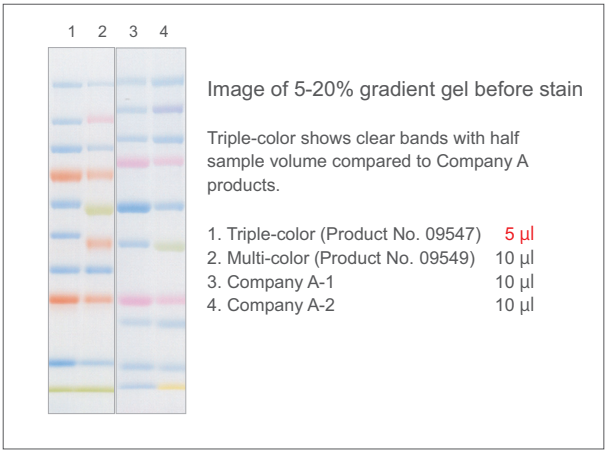
» **Sharp bands for accurate M.W. estimation**

» **Available in triple-color and multi-color**

Separation Pattern



Comparison of Required Volume



Ordering Information

Product Name	Storage	Product No.	PKG Size
Protein Ladder One, Multi-color (Broad Range) for SDS-PAGE	F	09549-25	500 µl
Protein Ladder One, Triple-color (Broad Range) for SDS-PAGE	F	09547-74	250 µl

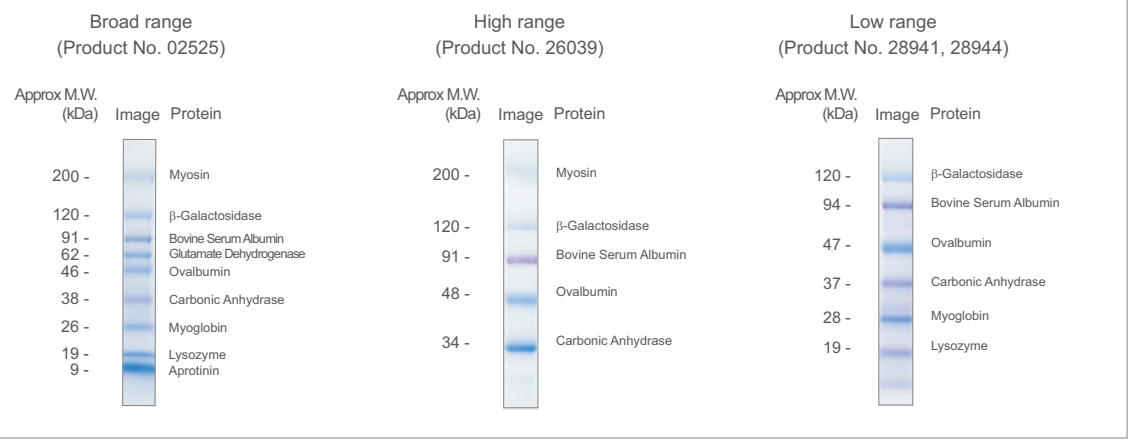
[Storage] F = Freezer

● Prestained Protein Markers

» **High concentrarion of prestained proteins**

» **Visible during electrophoresis**

Images



Ordering Information

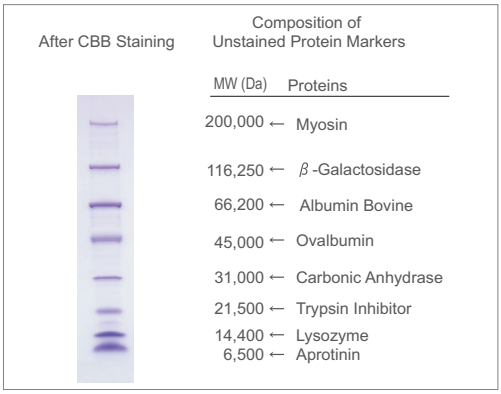
Product Name	Storage	Product No.	PKG Size
Prestained Protein Markers (Broad Range) for SDS-PAGE	F	02525-35	500 µl
Prestained Protein Markers (High Range) for SDS-PAGE	F	26039-75	500 µl
Prestained Protein Markers (Low Range) for SDS-PAGE	F	28941-75	500 µl
		28944-74	5 x100 µl

[Storage] F = Freezer

Unstained Protein Markers (10x)

» **Contains 8 kinds of protein (M.W. 6,500 - 200,000 Da)**

Image



Composition

50(v/v)% Glycerol
0.3 M NaCl
0.1 M DTT, 2 mM EDTA・2Na
3 mM NaN_3
10 mM Tris-HCl (pH 7.0)

Ordering Information

Product Name	Storage	Product No.	PKG Size
Protein Markers (M.W. 6,500 - 200,000)(10x) for SDS-PAGE	F	29458-24	200 µl

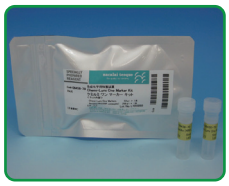
[Storage] F = Freezer

Chemi-Lumi One Markers Kit

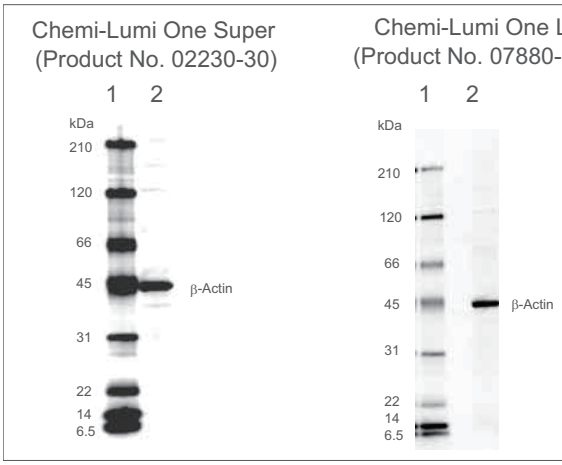
Chemi-Lumi One Markers Kit consists of biotinylated proteins and HRP conjugated streptavidin. Each band can be visualized on a western blotting by the same chemiluminescent reagents for the target protein.

» **Contains 8 biotinylated proteins as molecular weight markers (M.W. 6,500 - 200,000 Da)**

» **Includes HRP-conjugated strepavidin to detect biotinylated proteins**



Western Blotting for Detecting of β-Actin



1. Chemi-Lumi One Markers
2. Detection of β-Actin from Hela cell protein extraction solution

Gel:	SDS-PAGE (4-20% gradient gel)
Marker:	Chemi-Lumi One Markers (5 µl)
Membrane:	PVDF ..... 10V, 30 min
Blocking:	Blocking One (Product No. 03953-95)..... 60 min
Primary Ab:	Mouse anti-β-Actin, mono (200x)..... 60 min
Secondly Ab:	Goat anti-mouse IgG, HRP (5000x)..... 60 min + Streptavidin (HRP conjugate)(10,000x)
Detection:	Chemi-Lumi One Super (Product No. 02230-30) Chemi-Lumi One L (Product No. 07880-70)

Components

Chemi-Lumi One Markers consists of 8 biotinylated proteins, 50 µl: 1 tube
Streptavidin (HRP conjugate), 250 µl: 1 tube

Note: The molecular weight of Chemi-Lumi One Markers may slightly differ from unmodified proteins because of biotinylation.

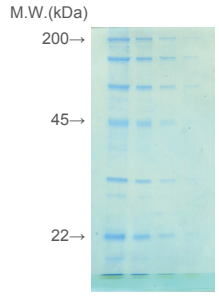
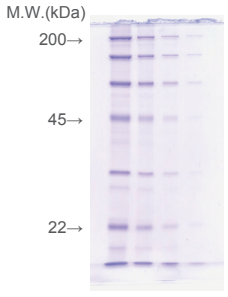
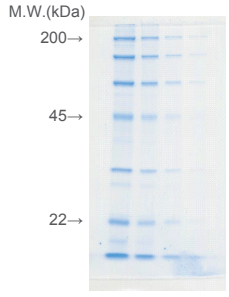
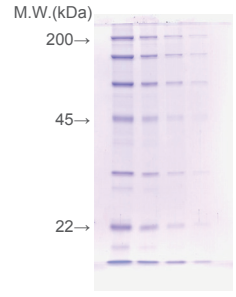
Ordering Information

Product Name	Storage	Product No.	PKG Size
Chemi-Lumi One Markers Kit	F	06456-70	1 kit

[Storage] F = Freezer

Coomassie Brilliant Blue Gel Staining

» **4 staining kits available**

	Bullet CBB Stain One	CBB Stain One Super	CBB Stain One	Rapid Stain CBB Kit
Dye Type	CBB-G250	CBB-R250	CBB-G250	CBB-R250
Component	Single bottle (Ready-to-use) w/o acetic acid and methanol	Single bottle (Ready-to-use) w/o acetic acid and methanol	Single bottle (Ready-to-use) w/o acetic acid and methanol	Two bottles w/ acetic acid and w/o methanol
Gel rinsing	Unnecessary	Required 3 times for 5min.	Required 3 times for 5min.	Unnecessary
Staining Period	15 min.	30 min.	60 min.	20 min.
Destaining Period	Unnecessary	More than 1 hr.	More than 1 hr.	More than 1 hr.
Sensitivity	Up to tens of ng proteins			
Stained Image (Protein marker)				

Ordering Information

Product Name	Storage	Product No.	PKG Size
Bullet CBB Stain One (Ready-to-use)	RT	13542-94	50 ml
		13542-65	500 mL
		13542-81	1 L
CBB Stain One Super (Ready-to-use)	RT	11642-31	1 L
CBB Stain One (Ready-to-use)	RT	04543-51	1 L
		04543-64	5 L
Rapid Stain CBB Kit (Coomassie R-250)	RT	30035-14	1 set (for 2 L)

Related Products

Product Name	Storage	Product No.	PKG Size
Coomassie Brilliant Blue G-250	RT	09409-42	25 g
Coomassie Brilliant Blue R-250	RT	09408-52	25 g
Amido Black 10B	RT	02001-14	5 g
Ponceau S	RT	28322-72	25 g

[Storage] RT = Room temperature

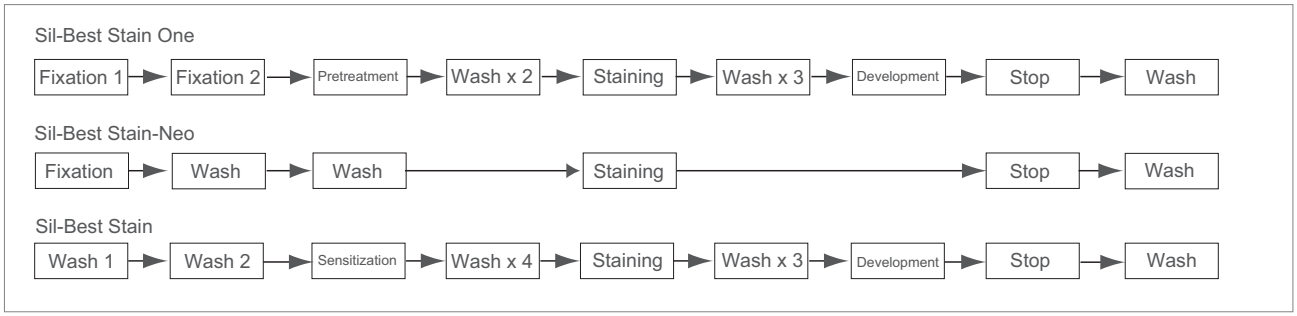
Silver Staining Kit

Sliver staining method is high sensitive method for detecting nucleic acids and proteins in polyacrylamide gel. We offer three types of silver staining kits, each having unique features for your experimental needs.

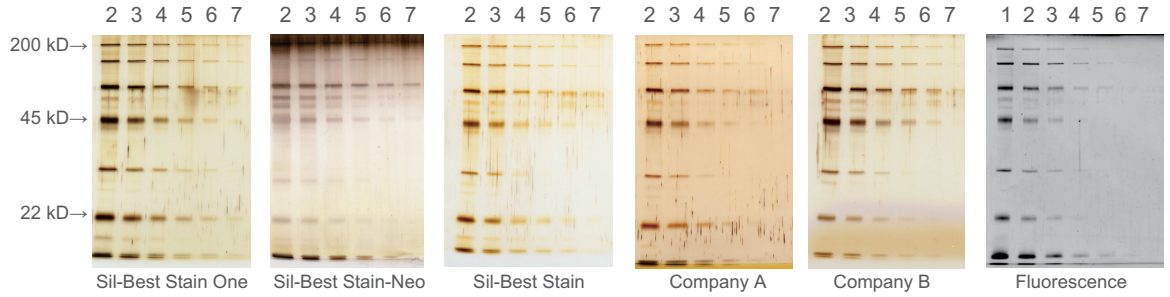
Selection of Silver Staining Kit

	Sil-Best Stain One	Sil-Best Stain-Neo	Sil-Best Stain
2-Dimensions	Excellent	Poor	Good
SDS-PAGE	Good	Good	Good
Nucleic Acid	Poor	Good	Fair
Step	12	6	14
Staining time	80 min.	60 min.	110 min.

Comparison of Each Procedure



Comparison of Each Staining Image



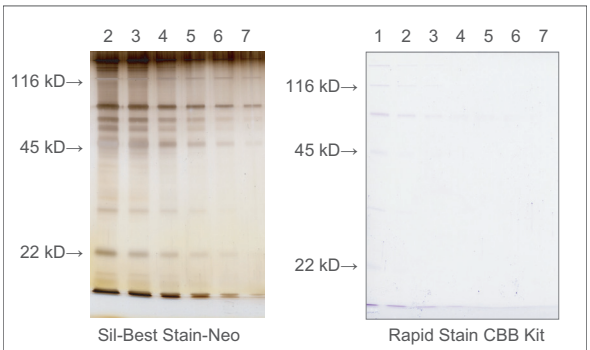
Gel: SDS-12% polyacrylamide gel
Sample: Protein Marker (Product No. 29458-24) 1: 510 ng 2: 255 ng 3: 130 ng 4: 50 ng 5: 26 ng 6: 13 ng 7: 5 ng

Sil-Best Stain-Neo

Sil-Best Stain-Neo is a highly sensitive method for detecting nucleic acids and proteins in polyacrylamide gel. It is 50-100 fold more sensitive than coomassie brilliant blue and ethidium bromide for proteins.

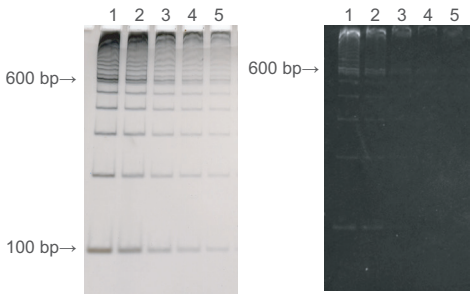
» **Only 6 steps within up to 1 hour**

Staining Image of Protein



Gel: 12% SDS polyacrylamide gel
Sample: Protein marker (Product No. 29458-24)
1: 510 ng, 2: 260 ng, 3: 130 ng, 4: 51 ng, 5: 26 ng, 6: 13 ng, 7: 5 ng

Staining Image of Nucleic Acid



Gel: 5% polyacrylamide gel / TBE
Sample: DNA 100bp Ladder
1: 10 ng, 2: 5 ng, 3: 2 ng, 4: 1 ng, 5: 500 pg

Ordering Information

Product Name	Storage	Product No.	PKG Size
Sil-Best Stain-Neo for Protein and Nucleic Acid/PAGE	R	05773-11	1 set
Sil-Best Stain One	R	06865-81	1 set

Related Products

Product Name	Storage	Product No.	PKG Size
Dispotray S (for minigel staining)	RT	16526-82	25 pieces
Dispotray M	RT	16551-84	20 pieces

[Storage] RT = Room temperature, R = Refrigerator

2-D Protein Electrophoresis

PAGE Clean Up Kit

PAGE Clean Up Kit offers protein precipitation, eliminating some substances such as salts and detergents, which facilitates better separation images in 2-D electrophoresis gels.

» **Suitable for protein sample preparation with 2-D electrophoresis**
» **Shorter than dialysis method**

Gel Staining Images

Coomassie Brilliant Blue Staining

CBB Stain One #04543

Silver Staining

Silbest Stain One #06865-81

By precipitating proteins with PAGE Clean Up Kit, all protein spots are visualized at high resolution with low background.

Components

Reagents	Main Compositions	Volume	Quantity
Solution A	Trichloroacetic acid	10 ML	1
Solution B	Coprecipitating Agent	5 ML	1
Solution C	Acetone	100 ML	1

Ordering Information

Product Name	Storage	Product No.	PKG Size
PAGE Clean Up Kit	R	06441-50	1 kit

[Storage] R = Refrigerator

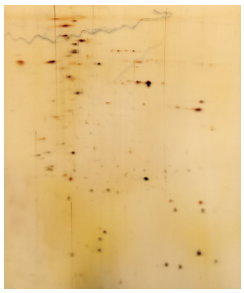
Sil-Best Stain One

Sil-Best Stain One is based on the silver staining method for protein detection in 2-D gels. Its composition does not contain glutaraldehyde affects a result of mass spectrography.

» **High sensitivity and low background**
» **No glutaraldehyde**

More visible protein spot numbers than Competitors' siliver staining kit

Sil-Best Stain One



Company A

Gel: 1-D: Immobiline pH 3-10 (GE Helthcare Bioscience)
2-D: 12% Gel
Sample: HL-60 cell extracut

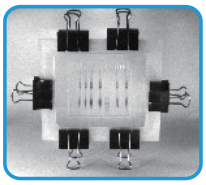
Ordering Information

Product Name	Storage	Product No.	PKG Size
Sil-Best Stain One	R	06865-81	1 set

[Storage] R = Refrigerator

Gel Drying

Polyacrylamide gel drying has never been easier than with BioDesignGelWrap™ and Acrylamide Gel Crack-proof Solution. Your gels will be dried quickly through the BioDesignGelWrap™ membrane, which forms a tough and flat envelope around your gel that will be stable for years without gel crack by performance of Acrylamide Gel Crack-proof Solution.



Procedure

1. Add 50 ml of Acrylamide Gel Crack-proof Solution to a new clean tray and soak a mini-gel (10 x 10 cm) then shake gently for 20-25 min.[*1]
2. Cut two pieces of BioDesignGelWrap™ the same size as your BioDesignGelFrame[*2].
3. Wet the BioDesignGelWrap™ in a small amount of water. BioDesignGelWrap™ wets instantly and will become slightly opaque. Never soak for more than one minute, as excessive wetting will cause poor results[*3].
4. Place one piece of the wet BioDesignGelWrap™ on the solid BioDesignGelFrame bottom section and push out the air bubbles underneath it using the side of your hand. Pour a small amount of water (10 to 20 ml) on top and then lay your gel down. Try to have as few as possible air bubbles trapped beneath your gel. Then pour another small volume of water on top of your gel. Place the second wet piece of BioDesignGelWrap™ down.[*4]
5. Place the open picture frame part of the BioDesignGelFrame on top and use the clamps, included with the BioDesignGelFrame, to secure all four sides.
6. Shake the assembled BioDesignGelFrame upside down, to remove any excess water.
7. Leave the frame horizontal while drying. With lower percentage polyacrylamide gels, you can air dry overnight. For polyacrylamide gels that are over 10%, 1 mm thick, gradient, or larger than 10 x 10 cm, use an incandescent lamp offering a 60 or 75 watt light bulb and position 10 cm away from the gel surface.
8. When your gel is dry, the BioDesignGelWrap™ will be completely clear and flat. Disassemble the BioDesignGelFrame.The BioDesignGelWrap™ located at the edges, which was between the two pieces of the frame, will still be damp and must be cut away with a scissors. With thicker gels, it is sometimes necessary to press the dried gel overnight to prevent curling.

[*1] Excess soak time may cause the gel to destain of CBB dye, to over-shrink and to become hazy after drying.
[*2] Preparation of BioDesignGelWrap should be started 5-10 min. before completing an acrylamide gel pretreatment.
[*3] BioDesignGelWrap™ cannot be stored wet.
[*4] Use the side of your hand to push out the bulk of the trapped air bubbles.

Ordering Information

Product Name	Storage	Product No.	PKG Size
BioDesignGelFrame, size: 15.3 × 17.8 cm	RT	G102	1 set
BioDesignGelFrame, size: 30.5 ×30.5 cm	RT	G105	1 set
BioDesignGelWrap™	RT	G101	1 roll
Acrylamide Gel Crack-proof Solution	RT	00860-11	1 L

[Storage] RT = Room temperature

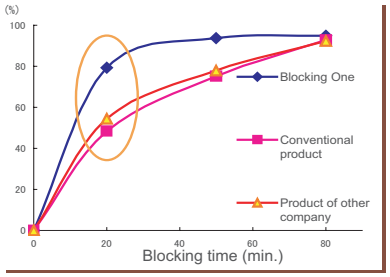
BioDesignGelFrame and BioDesignGelWrap™ are produced by Biodesign

High Performance Blocking Reagents: Blocking One Series

Blocking is indispensable in immunoassays in order to block non-specific binding reactions. As Blocking One contains high molecular weight compounds, casein and bovine serum protein, it is superior to conventional blocking solutions. Blocking One-P is an exclusive blocking solution, free of phosphate group and endogenous phosphatase for phospho protein detection. The performance is superior compared with conventional blocking solutions such as 1% BSA. The preservative in both Blocking One and Blocking One-P do not affect the enzyme activity of peroxidase (POD) or alkaline phosphatase (ALP). Only simple refrigerator storage is necessary, even after opening the bottle.

» **In many assays a reduction of incubation time for blocking can be realized**
» **Simple storage in a regrigerator even after opening the bottle**

Comparison of Blocking Efficincy



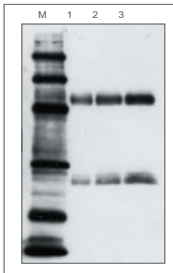
< Protocol >
Unlabeled antibody
↓ unlabeled anti-human albumin antibody
Blocking
↓ Add Blocking One, 1:5 dilution
Add POD labeled antibody reaction
↓ Add anti-human albumin antibody, POD conjugated (1 hr)
POD detection
↓ Add OPD (20 min)
Stop the reaction

The relationship between the reaction time and the effect of blocking in microplate assay.

In comparison with other products, Blocking One offers the strongest blocking efficiency along with faster blocking treatment time.

Western Blotting

Blocking One

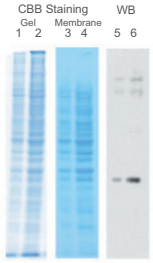


Incubation time: for 20 min.

Sample
M: Biotinylated Protein Marker (100 dilution, 5 µl)
1 : Mouse Serum (2.5 µl)
2 : Mouse Serum (5.0 µl)
3 : Mouse Serum (10 µl)

Mouse IgG (H+L) in Mouse Serum detected with biotinylated anti-Mouse IgG (H+L). Very little background occurs, indicating exceptional blocking performance.

Blocking One-P



Sample: HeLa whole cell lysate (1.0 x 107) treated by RIPA Buffef (#08714-04) (1 ml)
Protein Conc. Lane 1. 5 µl (SDS-PAGE Gel)
Lane 2. 10 µl (SDS-PAGE Gel)
Lane 3. 5 µl (Blotting Membrane)
Lane 4. 10 µl (Blotting Membrane)
Lane 5. 5 µ
Lane 6. 10 µ
Blocking: Blocking One-P, 20 min.
1st antibody: Anti-p-Tyr (PY20), Mono (Santa Cruz: #sc-508), 1:2000 dilution
2st antibody: Anti-Mouse IgG-HRP (Santa Cruz: #sc-2005), 1:10000 dilution
Gel staining: CBB Stain One (#04543-51)
WB Detection: Chemi-Lumi One L (#07880-70)

Comparison with Conventional Blocking Agents

	Composition	Treatment Time	Blocking Efficacy	Phospho-specific antibody applications
Blocking One-P	- High molecular weight compounds - BSA	20-30 min.	+++	+++
Blocking One	- High molecular weight compounds - BSA - Casein	20-30 min.	+++	+
Skim milk	- Casein	1 hour	+	-
1% BSA	- BSA	1 hour	+	++

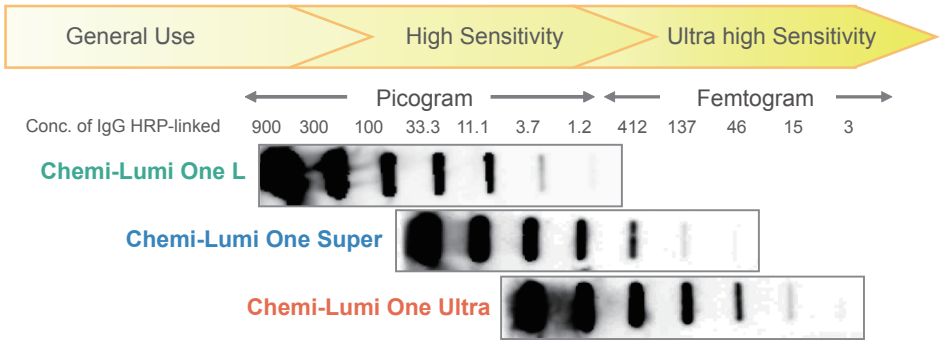
Ordering Information

Product Name	Storage	Product No.	PKG Size
Blocking One	R	03953-95	500 ml
Blocking One-P	R	05999-84	200 ml

[Storage] R = Refrigerator

Chemiluminescent Western Blotting Substrates

Chemi-Lumi One is a series of high sensitive luminol-based chemiluminescence assay kits for Western Blotting.Three types of chemiluminescent substrates are available for Western blot detection with horseradish peroxidase enzyme (HRP).

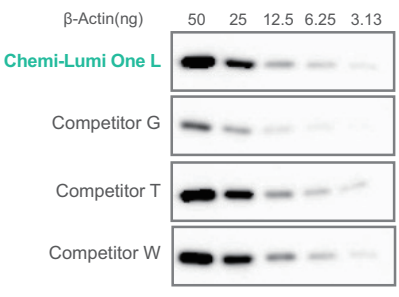
Product Name	Chemi-Lumi One L	Chemi-Lumi One Super	Chemi-Lumi One Ultra
Product No.	07880	02230	11644
Lower Detection Limit	Low-picogram	Mid-femtogram	Low-femtogram
Required Working Solution	Approx. 0.125 ml / cm^2	Approx. 0.1 ml / cm^2	Approx. 0.1 ml / cm^2
Suggested Antibody Dilution Ratio	Primary: 1:1,000-1:5,000 Secondary: 1:20,000-1:100,000	Primary: 1:1,000-1:20,000 Secondary: 1:20,000-1:200,000	Primary: 1:5,000-1:100,000 Secondary: 1:100,000-1:500,000
Reaction Period	1 min.	1 min.	5 min.
Comparable to	ECL SuperSignal Pico	ECL Prime SuperSignal Dura	ECL Select SuperSignal Femto
Sensitivity <Condition> Antigen: Anti-Mouse IgG (Goat), HRP Conjugated (Santa Cruz, sc-2005) Detection: L (1 min.) Super (1 min.) Ultra (5 min.) Detector: LAS-3000 Super mode (Analyze 3 min. later after reaction with each substrate) Ex. time: 30 min.			

● Chemi-Lumi One L

» **Suitable for optimization of target proteins**
» **Reasonable price**
» **Detect wide range of protein concentration**

Comparison of sensitivity with competitors

Chemi-Lumi One L offers similar sensitivity to T and W company's products and higher sensitivity than G company's products.



<Condition>

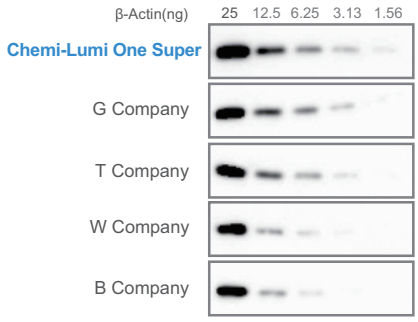
Gel: 10% PAGE gel
Wash: 0.1% t-TBS(1x), pH7.4
Blocking: Blocking One
1st Ab: Anti-β-Actin Mouse Monol Antibody, (Santa Cruze sc-47778), 1:1,000
2nd Ab: Anti-Mouse IgG (Goat)-HRP, (Santa Cruze sc-2005), 1:20,000
Detection: Chemi-Lumi One L; 1 min. Competitor G, T and W; 1min.
Detector: LAS-3000 High mode
Ex. time: 5 min.

Chemi-Lumi One Super

» **Extendable of exposure time**
» **Detects proteins at mid-femtogram level with low background**
» **Rapid substrate processing of blot**

Comparison of sensitivity with competitors

Chemi-Lumi One Super offers the highest sensitivity out of competitors' substrates even though its exposure time is 1 minute, while others require 5 minutes.



<Condition>

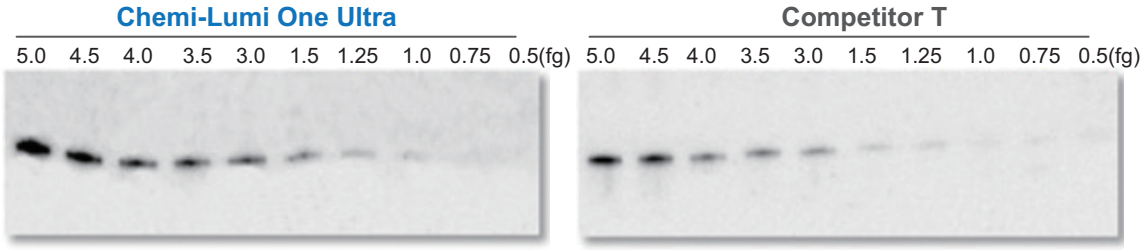
Gel:	10% PAGE gel
Wash:	0.1% t-TBS, pH7.4
Blocking:	Blocking One
1st Ab:	Anti-β-Actin Mouse Mono, (Santa Cruze sc-47778), 1:2,000
2nd Ab:	Anti-Mouse IgG (Goat)-HRP, (Santa Cruze sc-2005), 1:30,000
Detection:	Chemi-Lumi One Super; 1 min. Competitor G, T, W and B; 5 min.
Detector:	LAS-3000 High mode
Ex. time:	5 min.

Chemi-Lumi One Ultra

» **The most sensitive in Chemi-Lumi One Series**
» **Longer signal duration**
» **Wider range of experimental conditions due to low background**

Comparison of sensitivity with competitors

Western blot of identical transferrin samples. The membranes were incubated with substrate that was prepared according to the manufacturers' instructions.The membranes were exposed to film for 2 minutes.



1st antibody : Rabbit anti-transferrin, 1: 30,000
2nd antibody: Goat anti-rabbit IgG-HRP, 1: 200,000

Ordering Information

Product Name	Storage	Product No.	PKG Size
Chemi-Lumi One L, Luminol 250 ml and Peroxide 250 ml Sufficient substrate for 4,000 cm² of blotting membrane	R	07880-70	1 kit
Chemi-Lumi One Super, Luminol 50 ml and Peroxide 50 ml Sufficient substrate for 1,000 cm² of blotting membrane	R	02230-30	1 kit
Chemi-Lumi One Ultra, Luminol 50 ml and Peroxide 50 ml Sufficient substrate for 1,000 cm² of blotting membrane	RT	11644-40	1 kit

[Storage] R = Refrigerator

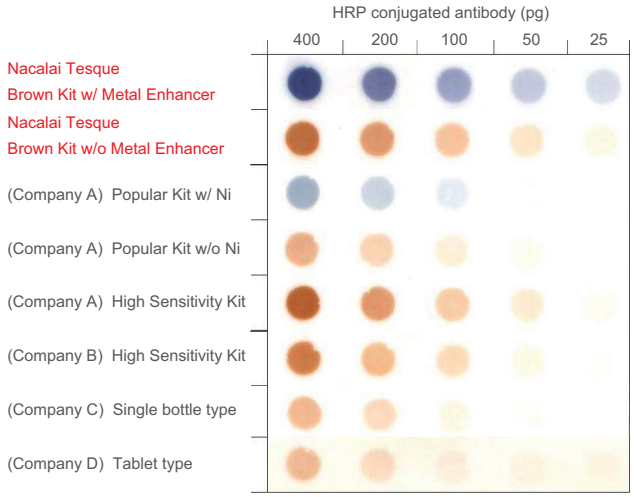
Colorimetric Western Blotting Substrates

Colorimetric detection enables detection of a target protein on a membrane by a simple procedure without usage of detection equipment. Depending on the enzyme type conjugated to the antibody, some detection kits are available.

● Peroxidase Stain DAB Kit with Metal Enhancer Solution

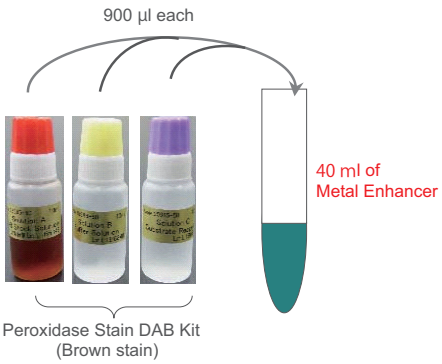
Peroxidase Stain DAB Kit is used to detect horseradish peroxidase (HRP) activity in immunoblotting, immnunohisto-chemistry and *in situ* hybridization, which enables to improve its sensitivity by dilution of substrates with Metal Enhancer for DAB Stain (Product No. 07388-24) that offers about two times higher than the one with Peroxidase Stain DAB Kit alone.

Application of Dot blot



The sensitivity achieved with Peroxidase Stain DAB kit alone is higher than can be obtained with our competitors' products. Furthermore, the sensitivity of Metal Enhancer for DAB stain, when used in conjunction with Peroxidase Stain DAB kit, is about two times higher than what can be obtained with Peroxidase Stain DAB kit alone.

Procedure of combination Peroxidase Stain DAB Kit and Metal Enhancer Solution



Add one drop from each bottle in the Peroxidase Stain DAB solution kit to increase sensitivity. Change the adjusting solution of Peroxidase Stain DAB kit (Brown Stain) from water to Metal Enhancer for DAB.

Ordering Information

Product Name	Storage	Product No.	PKG Size
Peroxidase Stain DAB Kit (Brown Stain)	R	25985-50	1 kit
Metal Enhancer for DAB Stain	RT	07388-24	100 ml

[Storage] RT = Room temperature, R = Refrigerator

Streptavidin Biotin Complex Peroxidase Kit

Streptavidin Biotin Complex Peroxidase Kit includes reagents for the "Avidin-Biotin Complex, ABC technique", a highly sensitive method for immunoblotting, immunohistochemistry, ELISA and *in situ* hybridization.

Ordering Information

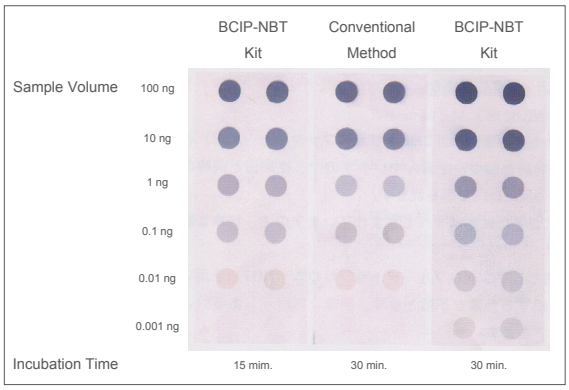
Product Name	Storage	Product No.	PKG Size
Streptavidin Biotin Complex Peroxidase Kit	R	30462-30	1 kit

[Storage] R = Refrigerator

BCIP-NBT Solution Kit

BCIP-NBT Solution Kit is designed for high sensitivity alkaline phosohatase (ALP) detection kit on a membrane and a tissue section. As this kit contains ALP reaction enhancer, incubation period can be half of conventional methods.

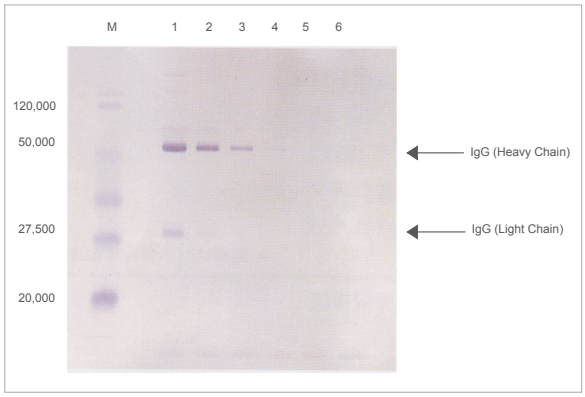
Application of Dot blot



This kit offers the same detection sensitivity as the conventional method achieved in half of the time.

Condition;
Sample : Alkaline Phosphatase (Calf Intestine)

Application of Western Blot



In this case study, the maximum detection level of IgG seems to be 0.2 mg protein amount and this kit offers good quantitative analysis data.

Condition;
Sample: Human serum
Sample amount: 1; 5 µg, 2; 1.7 µg, 3: 0.55 µg, 4; 0.2 µg, 5; 60 ng, 6; 20 ng
1st antibody: Anti-human IgG (Goat)
2nd antibody: Anti-goat IgG (Rabbit) ALP conjugated
Electrophoresis: 12.5% SDS-PAGE (35 mA, 40 minutes)
Membrane: PVDF membrane
Exposure time: 30 minutes

Components

	Main Composition	Volume	Quantity
Staining Stock Solution	BCIP and NBT	2 ml	1
Buffer Solution	Tris-HCL Buffer with Magnesium Chloride	200 ml	1

Ordering Information

Product Name	Storage	Product No.	PKG Size
BCIP-NBT Solution Kit for Alkaline Phosphatase Stain, Nuclease tested	F	03937-60	1 Kit

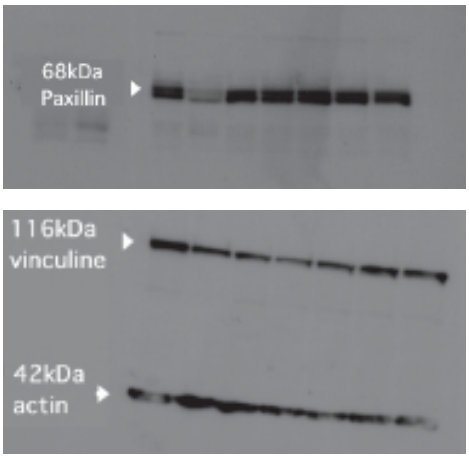
[Storage] F = Freezer

WB Stripping Solution

WB Stripping Solution removes conjugated antibodies from blots, enabling subsequent detections with different antibodies on the very same blot. After the first antigen-antibody reaction and following chemiluminescent visualization, the antibodies can be removed by the WB Stripping Solution. A second antigen-antibody reaction can be conducted on the same blot. The same blot can be probed 2-5 times if chemiluminescent detection is employed.

- » **No heating** — **Reaction at room temperature**
- » **No odor** — **Does not contain 2-mercaptoethanol**
- » **Fast** — **Stripping time 5-15 minutes**
- » **Ready-to-use** — **One solution in one bottle**

Applications

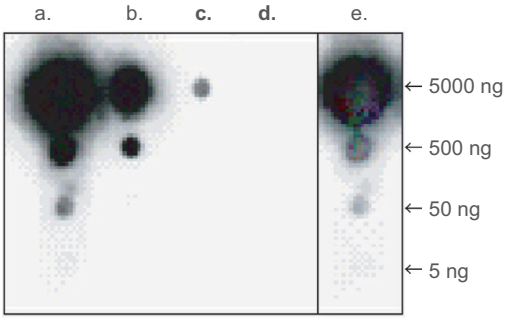


First antigen-antibody reaction
Blocking : Blocking One (Product No.: 03953-95), 30 min
Wash : t-Tris Buffered Saline
Primary ab : Anti-Paxillin (mouse IgG)
Secondary ab : Anti-mouse IgG-POD
Detection : Chemiluminescence Detection Kit (commercially available product)

Stripping
Condition: RT, 15 min for conventional protocol

Second, different antigen-antibody reaction
Blocking : Blocking One (Product No.: 03953-95), 30 min
Wash : t-Tris Buffered Saline
Primary ab : Anti-Vinculin (mouse IgG) / Anti-Actin (mouse IgG)
Secondary ab : Anti-mouse IgG-POD
Detection : Chemi-Lumi One

Comparison of WB Stripping Solution and WB Stripping Solution Strong



Apply HPR-labeled anti-GST antibody to 5000 ng, 500 ng, 50 ng, or 5 ng (as desired) of c-Myc-GST antigen on a PVDF membrane, then remove the antibody by agitating gently for 10 minutes using one of the following stripping solutions.

a: 0.05%(v/v) t-TBS
b: 2%(w/v) SDS, 100mM 2-Meraptoethanol
c: WB Stripping Solution
d: WB Stripping Solution Strong

After stripping the antibodies and washing the membrane with t-PBS for 2 min, use the chemiluminescence method to detect the HPR-labeled anti-GST antibody remaining on the membrane.

*Image “e” is a result that shows detection of the antigen with HPR-labeled anti-GST antibody on the “d” . The similar result is marked with “a” . Therefore, WB Stripping Solution Strong only stripped antibodies, not antigens.

Ordering Information

Product Name	Storage	Product No.	PKG Size
WB Stripping Solution	R	05364-55	500 ml
WB Stripping Solution Strong	R	05677-65	500 ml
WB Stripping Solution Trial Set (WB Stripping Solution: 40 ml, WB Stripping Solution Strong: 40 ml)	R	05680-21	1 set

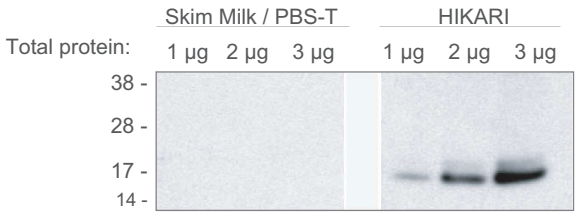
[Storage] R = Refrigerator

Signal Enhancer HIKARI for Western blotting and ELISA

Dilute your antibodies with Signal Enhancer HIKARI instead of conventional diluents such as PBS-t or TBS-t before performing your next western blotting detection protocol and witness a remarkable increase in the ability to detect the protein of interest and to eliminate undesired background. Signal Enhancer HIKARI was developed to resolve the problems of low sensitivity and high background often encountered during procedures such as Western blotting and ELISA.

- » **Enhances antigen-antibody reactions**
- » **Removes background**
- » **Works with any substrate**
- » **Works with any membrane**
- » **Ready-to-use reagent**

Detection Enhancement of Rac1

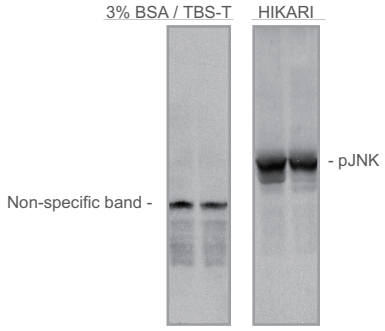


Treatment with Signal Enhancer HIKARI resulted in clear signal, whereas dilution with conventional PBS-T resulted in no signal.

Primary antibody	: Anti-Rac1 (1:1000)
Secondary antibody	: Anti-Mouse IgG-HRP (1:2500)
Sample	: Rat Cortical Primary Neuron
Detection	: ECL

Data courtesy of Dr. K. Ishizuka, Department of Psychiatry, Johns Hopkins University School of Medicine

Detection Enhancement of pJNK



Treatment with Signal Enhancer HIKARI resulted in clear signal enhancement and background suppression compared with the conventional method using TBS-T.

Primary antibody	: Anti-pJNK (1:1000)
Secondary antibody	: Anti-Rat IgG-HRP (1:5000)
Sample	: Mouse Embryonic Fibroblast
Detection	: Super Signal West Pico

Data courtesy of Dr. S. Matsuzawa, Signal Transduction, NCI Cancer Center, Burnham Institute for Medical Research

Referenes

1. Feng-Ming Yang *et al. FEBS* **276**, 425-436 (2009)
2. Jian-Bin Wang *et al. The Journal of Cell Science* **122**(12), 2024-2033 (2009)
3. Chunwei Huang *et al. Reproductive Toxicology* **27**, 103-110 (2009)
4. Sawako Yamashiro *et al. The Journal of Cell Science* **121** (Pt 23), 3867-3877 (2008)

Ordering Information

Product Name	Storage	Product No.	PKG Size
Signal Enhancer HIKARI for Western Blotting and ELISA	R	02267-41	1 set (50 ml each)
Kit contents: Solution A for Primary Antibody		02270-81	1 set (250 ml each)
Solution B for Secondary Antibody			
Signal Enhancer HIKARI for Western Blotting and ELISA Solution A	R	02272-74	250 ml
Signal Enhancer HIKARI for Western Blotting and ELISA Solution B	R	02297-64	250 ml

[Storage] R = Refrigerator

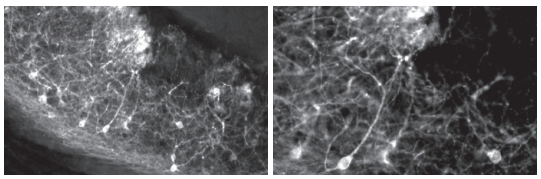
Epitope Tag Antibody

NACALAI TESQUE carries a family of epitope tag antibodies for the detection and purification of the recombinant proteins. Most of Nacalai's tag antibodies are highly specific mouse and rat monoclonal antibodies.

● Anti-GFP (Rat IgG2a), Mono (GF090R)

Clone	: GF090R	
Isotype	: IgG2a (Rat)	
Product form	: Liquid	
Immunogen	: His-GFP (full length) fusion protein	
Application	: Immunohistochemstry	1:1000-1:2000
	Western Blotting	1:1000-1:2000
	ELISA	1:2000-1:20000

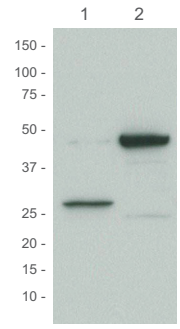
Immunohistochemistry



Sample : Mouse brain (nerve cell)
Primary antibody : Anti-GFP(Rat IgG2a), Mono (1:1000) RT, O/N
Secondary antibody : Anti-Rat IgG-Cy3 (1:300) RT, 1 hr
Blocking 5% Normal goat serum/0.2% TritonX-100 in PBS
Fixing method : 4% Paraformaldehyde

Data courtesy of Dr. Y. Yoshihara, RIKEN Brain Science Institute

Western Blotting



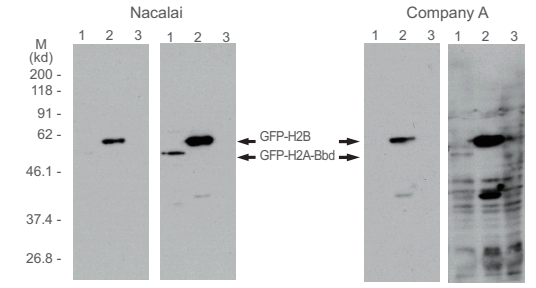
Sample : 1; GFP, 2; GFP-14-3-3 (293 cell lysate 50 µg)
Gel : 5-20% Gradient gel
Primary antibody : Anti-GFP (Rat IgG2a), Mono (3 µg/ml), O/N
Secondary antibody : Anti-Rat IgG-HRP (1:10000)

Data courtesy of Dr. K. Yoshida, Department of Molecular Genetics, Medical Research Institute, Tokyo Medical and Dental University

● Anti-GFP (Mouse IgG1-k), Mono (GF200)

Clone	: GF200	
Isotype	: IgG1-k (Mouse)	
Product form	: Liquid	
Immunogen	: His-GFP (full length) fusion protein	
Application	: Western Blotting	1:1000-1:2000
	ELISA	1:2000-1:20000

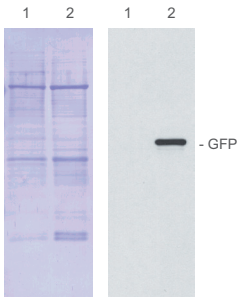
Western Blotting



[Exposure] : 1 min 10 min 1 min 10 min
[Primary antibody] :
mouse monoclonal anti-GFP (3.6 µg/ml) rabbit polyclonal anti-GFP (1:1000)
[Secondary antibody] :
anti-mouse IgG (1:1000) anti-rabbit IgG (1:1000)
[Sample]: 1. Hela: GFP-H2A-Bbd
2. Hela: GFP-H2B
3. Hela

Data courtesy of Dr. H. Kimura, Horizontal Medical Research Organization, Kyoto University Faculty of Medicine

Western Blotting



CBB Staining Western blotting

Sample : Protein extract from seedlings of Arabidopsis (10 mg)
1. Non-transformants (Control)
2. Transformants
Primary antibody : Anti-GFP (Mouse IgG1-κ) (1:5000)
Secondary antibody : Anti-Mouse IgG-HRP (1:2000)

Data courtesy of Dr. T. Shimada, Department of Botany, Graduate School of Science, Kyoto University

Reference

1. Nakamura, M. *et al. Molecular Vision* **16**, 425-437 (2010)
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13. Ogata M. *et al. Molecular and Cell Biology* **26**(24), 9220-9231 (2006)
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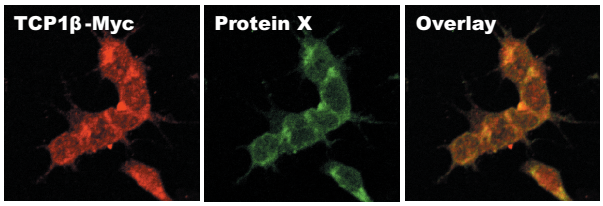
● Anti-c-Myc (Mouse IgG1-k), Mono (MC045)

Clone : MC045
Isotype : IgG1-k (Mouse)
Product form : Liquid
Immunogen : c-Myc synthetic peptide [EQKLISEEDL] conjugated with KLH
Application : Western Blotting 1:1000-1:2000
Immunoprecipitation 1:400-1:1000
Immunocytochemstry 1:400-1:1000
ELISA 1:2000-1:20000

Immunocytochemistry



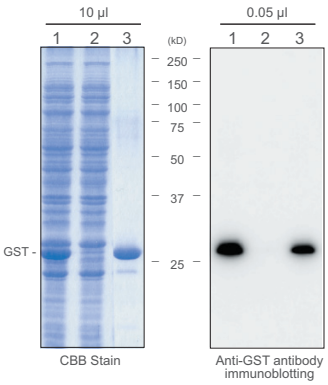
Sample SH-SY5Y cell in which c-Myc-tagged TCP1β is expressed
Primary antibody : Anti-c-Myc (Mouse IgG1-κ) (2.5 µg/ml)
Anti-Protein X
Secondary antibody : Anti-Fluor 546-conjugated antibody (1:400)
Anti-Fluor 488-conjugated antibody (1:400)

Data courtesy of RIKEN Brain Science Institute

● Anti-GST (Mouse IgG2a-k), Mono (GS019)

Clone : GS019
Isotype : IgG2a-k (Mouse)
Product form : Liquid
Immunogen : Gulutathione-S-Transferase (GST)
Application : Western Blotting 1:1000-1:2000
Immunoprecipitation 1:400-1:1000
ELISA 1:2000-1:20000

Western Blotting



Sample:
1. Lysate from *E. coli* expressioning GST protein
2. Glutathione Sepharose flow-through fraction
3. Glutathione Sepharose elution fraction

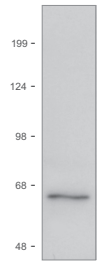
Gel : 12.5% SDS-PAGE
Blocking : Blocking One (Nacalai Tesque) /1 hr at RT
Primary antibody : Anti-GST (Mouse IgG2aκ) (1:2000 with Blocking One) /1 hr at RT
Wash : TBS-T (5 min x 3)
Secondary antibody : Anti-Mouse Ig-HRP (1:1000 with TBS-T)/30 min at RT
Wash : TBS-T (5 min x 3)
Detection : Luminol Reagent (Santa Cruz)

Data courtesy of Dr. Y. Shimizu,
The Institute of Medical Science, The University of Tokyo

● Anti-6xHis (Mouse IgG1a-k), Mono (HI192)

Clone : HI192
Isotype : IgG1-k (Mouse)
Product form : Liquid
Immunogen : 6xHis synthetic peptide [HHHHHH] conjugated with KLH
Application : Western Blotting 1:1000-1:2000
ELISA 1:2000-1:20000

Western Blotting



Sample:
Lysate from Sf9 cells in which His-tagged Drosophila PTEN is expressed

Filter : FluoroTrans [PALL]
Blocking : 5% non-fat dry milk/PBS (30 min)
Primary antibody : Anti-6xHis (Mouse IgG1κ), Monoclonal (HI192)
Wash : 0.25% Tween-20/TBS (10 min x 3)
Secondary antibody : Anti-Mouse IgG-HRP (1:1000) /2% BSA/0.25% Tween-20 /TBS (30 min)
Wash : 0.25% Tween-20/TBS (10 min x 5)
Detection : Luminol Reagent (Santa Cruz)

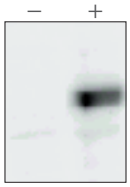
Data courtesy of Dr. A. Maehama, The Tokyo Metropolitan Institute of Medical Science (RINSHOKEN)

● Anti-V5 (Mouse IgG1-k), Mono (V5005)

Clone : V5005
Isotype : IgG1-k (Mouse)
Product form : Liquid
Immunogen : V5 synthetic peptide [GKPIPNPLLGLDST] conjugated with KLH
Application : Western Blotting 1:1000-1:2000
Immunoprecipitation 1:400-1:1000
ELISA 1:2000-1:20000

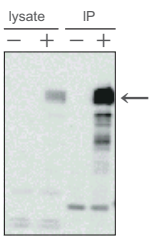
Western Blotting, Immunoprecipitation

(A) Western Blotting - VE-Cad. -V5



Sample : Lysate from 293T cell in which V5-tagged (C-terminal) pCDNA dest 40-VE cadherin is expressed
Antibody : Anti-V5 (Mouse IgG1-κ) (1:5000)

(B) Immunoprecipitation - VE-Cad. -V5



Sample : Lysate (A)
Antibody : Anti-V5 (Mouse IgG1-κ) (1 µl)
Western Blotting: Anti-V5 (Mouse IgG1-κ) (1:2000)

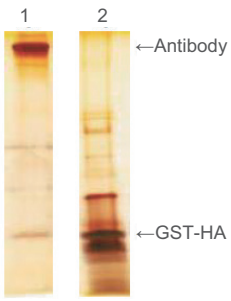
● Anti-HA (Mouse IgG1-k), Mono (HA124)

Clone : HA124
Isotype : IgG1-k (Mouse)
Product form : Liquid
Immunogen : Gulutathione-S-Transferase (GST) -HA[YPYDVPDYA-COOH] fusion protein
Application : Western Blotting 1:10000-1:30000
ELISA 1:2000-1:20000

Western Blotting

Sample : 1. *E. coli* lysate
2. NH_2-(GST)(T7)(HSV)(c-Myc)(VSV)(Glu-Glu)(V5)(E-tag)(DDDDK)(S-tag)(HA)(6xHis)-COOHNH(GST) (abcam, #ab5395) 250 ng
3. NH_2-(GST)(HA)-COOH (PIERCE, #23613) 20 ng
4. NH_2-(GST)(HA)-COOH (PIERCE, #23613) 100 ng
5. M.W. marker
Primary antibody : Anti-HA(Mouse IgG1-κ), Mono (HA124), 1:10000, 60 min
Secondary antibody : Anti-Mouse IgG (Rat IgG), Monoclonal Cocktail, CC, POD Conjugated 1:25000, 60 min
Detection : Chemi-Lumi One (Product No.: 05027-20), 1 min

Western Blotting

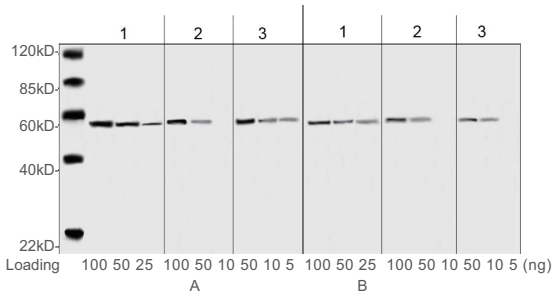


Sample : 1. clarified bacterial lysate
+ HA-tagged GST 1 μg
+ Anti-HA(Mouse IgG1- κ), Monoclonal (HA124), 5 μg
+ Protein G Agarose (50% Suspention) 0.05 ml
2. *E. coli* lysate
+ NH2-(GST)(HA)-COOH (PIERCE, #23613) 1 μg
Detection : Silver staining

● Anti-DYKDDDDK(Mouse IgG2b-κ), Mono

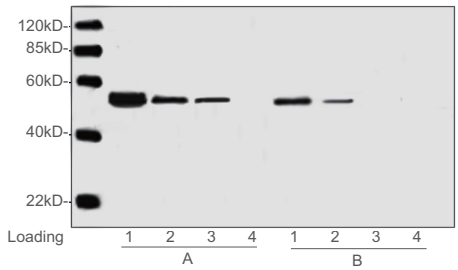
Clone : 5A8E5
Isotype : IgG2b-κ (Mouse)
Product form : Lyophilized form
Specificity : Anti-DYKDDDDK recognizes C-terminal, N-terminal and internal tagged fusion proteins.
Concentration : 0.5 mg/ml, lyophilized with PBS, pH7.4, containing 0.02% sodium azide.
Immunogen : A synthetic peptide (DYKDDDDK) coupled KLH
Application : Western Blotting 0.1-1.0 μg/ml
Immunoprecipitation 1 μg/ml
Immunofluorescent 1 μg/ml
: ELISA 0.05-0.2 μg/ml

Western Blotting



Sample : Lane 1. N-terminal DYKDDDDK-tagged fusion protein
Lane 2. Internal DYKDDDDK-tagged fusion protein
Lane 3. C-terminal DYKDDDDK-tagged fusion protein
Primary Ab : A. Anti-DYKDDDDK(Mouse IgG2b-κ), Mono (5A8E5) 1 mg/ml
B. Company S, Anti-DYKDDDDK Tag mAb (M2) 1 mg/ml
Secondary Ab : Goat anti-Mouse IgG IRDye™ 800 Conjugated

Western Blotting



Sample : Lane 1-3. Multiple Tag (Purified) (400 ng, 80 ng, 16 ng)
Lane 4. 293 cell lysate 10 ml
Primary Ab : A. Anti-DYKDDDDK(Mouse IgG2b-κ), Mono (5A8E5) 1 mg/ml
B. Company S, Anti-DYKDDDDK Tag mAb (M2) 1 mg/ml
Secondary Ab : Goat anti-Mouse IgG IRDye™ 800 Conjugated

Ordering Information

Product Name	Application	Storage	Product No.	PKG Size
Anti-c-Myc (Mouse IgG1-k), Monoclonal (MC045)	WB, IP, ICC, ELISA	R	04362-76	50 µg
			04362-34	200 µg
Anti-GFP (Mouse IgG1-k), Monoclonal (GF200)	WB, ELISA	R	04363-66	50 µg
			04363-24	200 µg
Anti-GFP (Rat IgG2a), Monoclonal (GF090R)	WB, IHC ELISA	R	04404-26	50 µg
			04404-84	200 µg
Anti-GST (Mouse IgG2a-k), Monoclonal (GS019)	WB, IP ELISA	R	04435-84	50 µg
			04435-26	200 µg
Anti-HA (Mouse IgG1-k), Monoclonal (HA124)	WB, ELISA	R	06340-96	50 µg
			06340-54	200 µg
Anti-6xHis (Mouse IgG1-k), Monoclonal (HI192)	WB, ELISA	R	04428-26	50 µg
			04428-84	200 µg
Anti-V5 (Mouse IgG1-k), Monoclonal (V5005)	WB, IP ELISA	R	04434-94	50 µg
			04434-36	200 µg
Anti-DYKDDDDK (Mouse IgG2b-κ), Mono	WB, IP IF, ELISA	F	NU01102	200 µg

[Storage] R = Refrigerator, F = Freezer

Labeled Epitope Tag Antibody

● Anti-c-Myc, POD Conjugated

Clone : MC045
Isotype : IgG1a-κ (mouse)
Product form : Liquid
Immunogen : c-Myc synthetic peptide [EQKLISEEDL] conjugated with KLH
Application : Western blotting 1:1000 - 1:2000
ELISA 1:30000 - 1:60000

● Anti-GST, POD Conjugated

Clone : GS019
Isotype : IgG2a-κ (mouse)
Product form : Liquid
Immunogen : Glutathione-s-Transferase (GST)
Application : Western blotting 1:4000 - 1:8000
ELISA 1:30000 - 1:60000

● Anti-V5, POD Conjugated

Clone : V5005
Isotype : IgG1-κ (mouse)
Product form : Liquid
Immunogen : V5 synthetic peptide [GKPIPNPLLGLDST] conjugated with KLH
Application : Western blotting 1:1000 - 1:2000
ELISA 1:8000 - 1:16000

● Anti-GFP, POD Conjugated

Clone : GF200
Isotype : IgG1-κ (mouse)
Product form : Liquid
Immunogen : His-GFP (full-length) fusion protein
Application : Western blotting 1:1000 - 1:2000
ELISA 1:2000 - 1:4000

Ordering Information

Product Name	Application	Storage	Product No.	PKG Size
Anti-c-Myc (Mouse IgG1-κ), Monoclonal (MC045), AS, Agarose Conjugate	IP	R	04145-55	500 µg
Anti-GFP (Rat IgG2a), Monoclonal(GF090R), CC, Agarose Conjugate	IP	R	06083-05	500 µg
Anti-DYKDDDDK (Mouse), Monoclonal Agarose Conjugate	IP	F	NU01103	1 ml
Anti-c-Myc (Mouse IgG1-κ), Monoclonal (MC045), AS, POD Conjugated	WB, ELISA	R	04554-24	50 µg
Anti-GST (Mouse IgG2a-κ), Monoclonal (GS019), AS, POD Conjugated	WB, ELISA	R	04559-74	50 µg
Anti-6xHis (Mouse IgG1-κ), Monoclonal (HI192), AS, POD Conjugated	WB, ELISA	R	04546-34	50 µg
Anti-V5 (Mouse IgG1-κ), Monoclonal (V5005), AS, POD Conjugated	WB, ELISA	R	04578-24	50 µg
Anti-GFP (Mouse IgG1-κ), Monoclonal (GF200), AS, POD Conjugated	WB, ELISA	R	05178-34	50 µg

[Storage] R = Refrigerator, F = Freezer

Mounting Medium for Fluorescent Staining

Fluoro-KEEPER Antifade Reagent is a non-hardening mounting medium with a unique antifade reagent. It suppresses rapid photobleaching during fluorescence microscopy experiments. The coverslipped slide with nail polish or other sealants can be stable for several weeks. There are two types of products available, with DAPI [4',6-Diamidino-2-phenylindole] and without DAPI, which counterstains nucleus blue.

Fluoro-KEEPER Antifade Reagent, Non-Hardening Type with DAPI

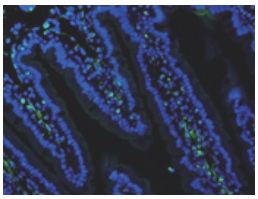
» **Inhibits photobleaching of various fluorescent dyes**
» **Easy to use with eye-drop bottle**

Fluorescent microscopy experiments

Fluoro-KEEPER with DAPI offers nuclear staining along with mounting.

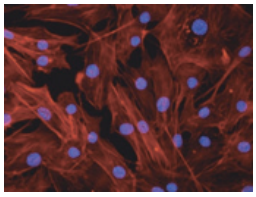
Mounting Medium: Fluoro-KEEPER with DAPI for 30 min. at room temperature protecting from light.
Microscopy: Olympus BX-50-34-FLA1

Mouse Small Intestine



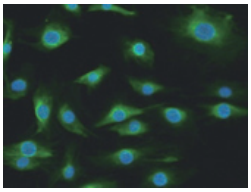
Antigen retrieval: HistoVT One (#06380)
Blocking : Blocking One Histo (#06349)
1st Ab: Anti-Vimentin Rabbit Polyclonal Antibody (Santa Cruz #sc-7557R)
2nd Ab: CFTM 488A Goat Anti-Rabbit IgG (H+L), Fragment (Biotium #20013)

MC3T3-E1 Cell



Blocking: Blocking One Histo (#06349)
Rhodamine-conjugated phalloidin (Cytoskeleton #PHDR1)

MC3T3-E1 Cell



Blocking: Blocking One Histo (#06349)
1st Ab: Anti-Vimentin Rabbit Polyclonal Antibod (Santa Cruz #sc-7557R)
2nd Ab: Cy®2 Goat Anti-Rabbit IgG (H+L) (GENETEX #GTX26940)

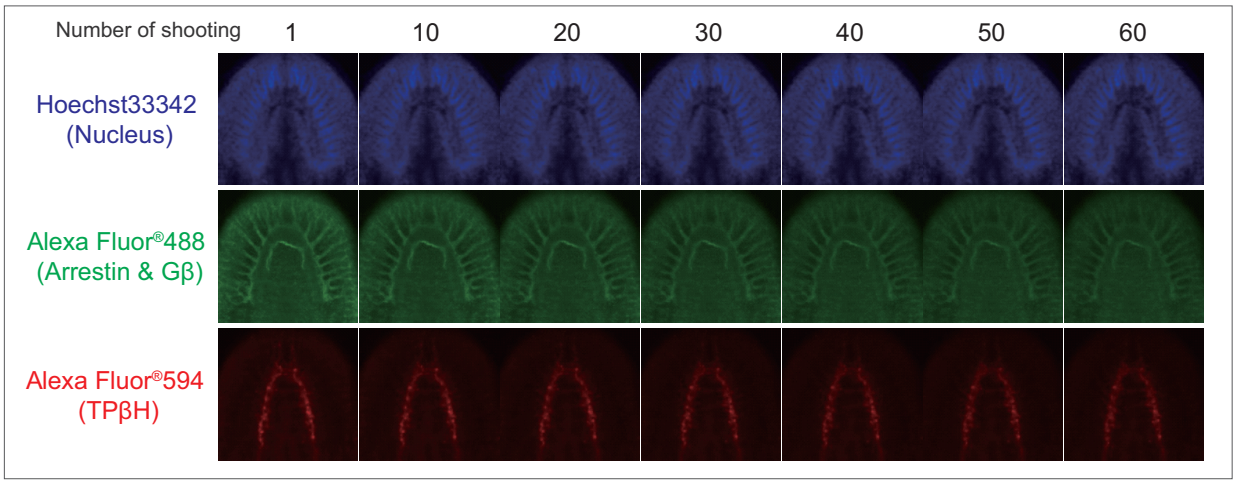
Ordering Information

Product Name	Storage	Product No.	PKG Size
Fluoro-KEEPER Antifade Reagent, Non-Hardening Type with DAPI	R	12745-74	2 x 5 ml

[Storage] R = Refrigerator

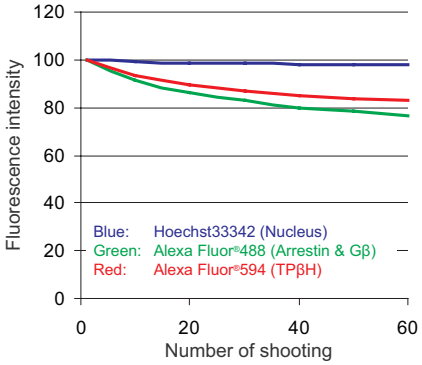
Fluoro-KEEPER Antifade Reagent, Non-Hardening Type without DAPI

Fluorescent microscopy experiments; Planarian



■ Fluorescence intensity

Fluorescence intensities are shown as percentages of initial intensities remaining during repeated frame capture up to 60 times. The images were acquired by Olympus FV10. The samples mounted in the Fluoro-KEEPER Antifade Reagent were clearly detected after 60 times of frame capture.



Nuclear
Hoechst 33342
Arrestin and G Protein β Subunit(Gβ)
1st Abs: Mouse Anti-planarian Arrestin
Mouse Anti-planarian Gβ
2nd Ab: Alexa Fluor® 488 Goat Anti-mouse IgG
Tryptophan β Hydroxylase(TPβH)
1st Ab: Rabbit Anti-planarian TPβH
2nd Ab: Alexa Fluor® 594 Goat Anti-rabbit IgG

Samples were mounted in the Fluoro-KEEPER Antifade Reagent

Data courtesy of Agata Lab, Department of Biophysics, Kyoto University

Comparison of antifade effectiveness with different fluorescent dyes

Fluoro-KEEPER Antifade Reagent offers increased resistance to photobleaching of various fluorescent dyes.

	without DAPI		with DAPI	
Fluorescence Dye	**Fluoro-KEEPER**	**Control**	**Fluoro-KEEPER**	**Control**
Hoechst 33258	98	96	–	–
Hoechst 33342	100	90	–	–
DAPI	99	93	–	–
Propidium Iodide	95	67	–	–
Fluorescein	97	49	96	49
Alexa Fluor® 488	93	86	96	91
CF™ 488	93	82	91	82
Cy® 2	99	83	98	81
Rhodamine	72	51	78	41
Alexa Fluor® 555	98	81	97	87
CF™ 555	98	85	97	85
Cy® 3	89	71	86	66

Cells stained by each fluorescent dye were mounted in Fluoro-KEEPER Antifade Reagent, 85% Glycerol containing PBS as a control. Samples were illuminated for 60 seconds. Each number indicates fluorescence intensity as percentage of initial intensity after 60 seconds exposure photobleaching.

Control Condition: 85% Glycerol-PBS w/o DAPI
85% Glycerol-PBS w/ DAPI
Fluorescent Microscopy: Olympus BX-50-34-FLA1
Exposure time: 60 seconds.

Ordering Information

Product Name	Storage	Product No.	PKG Size
Fluoro-KEEPER Antifade Reagent, Non-Hardening Type without DAPI	R	12593-64	2 x 5 ml

Storage] R = Refrigerator

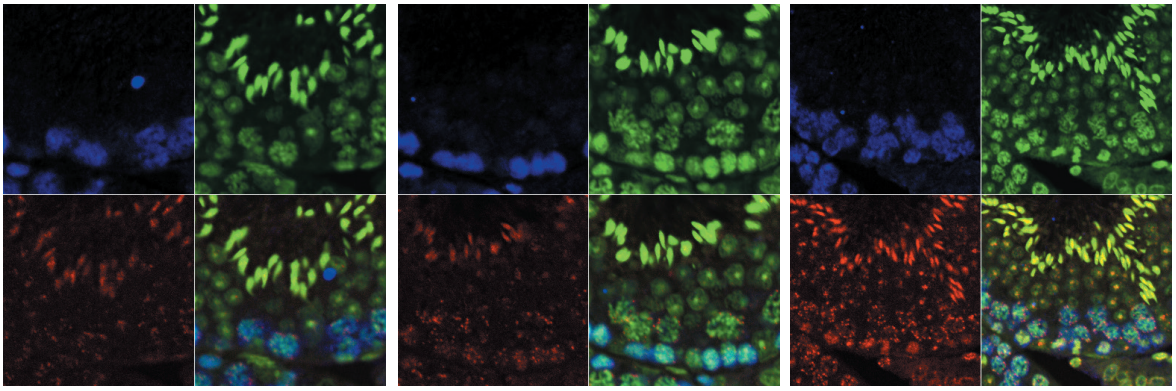
HistoVT One (10x, pH 7.0)

HistoVT One is an antigen retrieval solution for immunohistochemistry and *in situ* hybridization. This product can unmask antigenic sites without damage to antigen from formalin-fixed, frozen or paraffin-embedded tissue sections.

- » **Enhancing antigen-antibody reaction**
- » **Usable with frozen or paraffin-embedded tissue section**
- » **High reproducibility**

Application 1

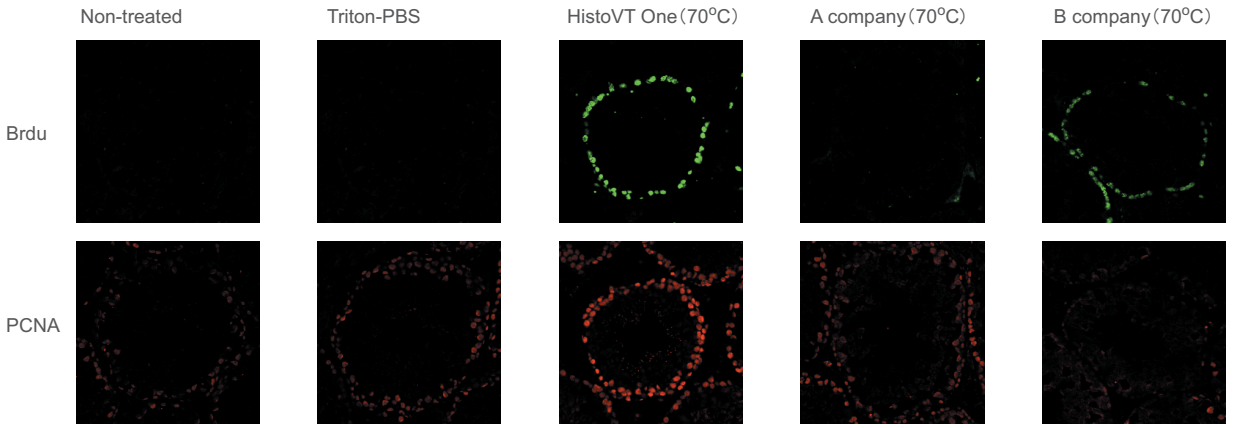
Formalin-fixed, paraffin-embedded tissue sections



Blue: PCNA (Immunohistochemistry) Green: Nuclear staining (Cytogreen staining) Red: Telomere DNA (FISH)

Application 2

Frozen sections



HistoVT One can unmask antigen more effectively than other treatments.

Data courtesy of RIKEN Brain Science Institute, Brain Development Research Group

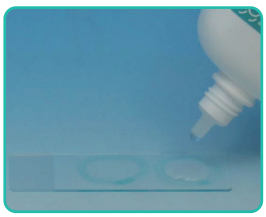
Ordering Information

Product Name	Storage	Product No.	PKG Size
HistoVT One (10x, pH 7.0)	RT	06380-05	500 ml

[Storage] RT = Room temperature

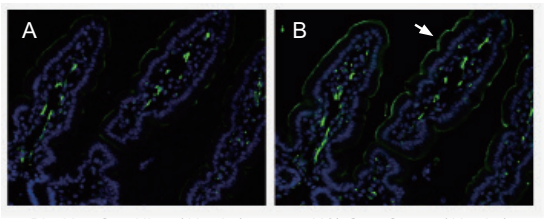
Blocking One Histo

Blocking One Histo is a blocking solution to prevent non-specific binding of antibodies in immunohistochemistry (IHC). The product is designed for immunohistochemistry application based on Blocking One (refer to Western Blotting Section).



- » **Eye-drop bottle**
- » **Can be used for immunofluorescence staining**
- » **The preservative does not affect the activity of alkaline phosphatase or horseradish peroxidase**

Comparison of blocking efficiency with 10% Goat Serum (Immunofluorescence)

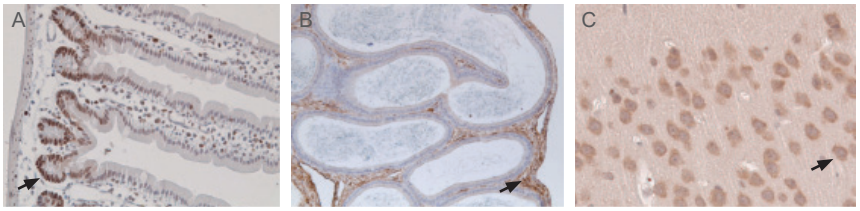


Blocking One Histo (10 min.) 10% Goat Serum (10 min.)

Sample	Mouse small intestine (Paraffin-embedded section)
Antigen Retrieval	Histo VT One, 90°C, 20 min.
Primary antibody	Anti-Vimentin rabbit polyclonal antibody (Santa Cruz: #sc-7557R)
Secondary antibody	CF™ 488A Goat anti-Rabbit IgG(H+L), F(ab')$_2$ Fragment (Biotium: #20013)

In both panels, mouse small intestine tissue section was stained with secondary antibody conjugated with CFTM 488A (green) and counter stained with DAPI (blue). In the panel B with 10% Goat Serum, the stained white arrow along the lines of shape of small intestine show non-specific staining. Blocking One Histo is more effective at reducing non-specific background staining than normal serum.

Applications



A: Mouse small intestine (PCNA) x5
B: Mouse epididymis (Vimentin) x25
C: Mouse brain (GluR) x100

Antigen Retrieval	Histo VT One, Room temp., 10 min.
Primary antibody	A: Anti-PCNA rabbit pAb (Santa Cruz: #sc-7907) B: Anti-Vimentin rabbit pAb (Santa Cruz: #sc-7557R) C: Anti-GluR-1 goat pAb (Santa Cruz: #sc-7608)
Secondary antibody	A: Goat anti-rabbit IgG (H+L), biotin conjugated (Vector, #BA-1000) B: Goat anti-rabbit IgG (H+L), biotin conjugated (Vector, #BA-1000) C: Bovine anti-goat IgG (H+L), biotin conjugated (Santa Cruz: #sc-2347)
Detection	Streptavidin Biotin Complex Peroxidase Kit (Product No. 30462) Peroxidase Stain DAB Kit (Brown Stain) (Product No. 25985)

Blocking treatment of each tissue section had been performed by Blocking One Histo. Mouse small intestine (panel A) was stained with anti-PCNA and DAB (3,3'-Diamino Benzidine) to stain nuclear (black arrow), Mouse epididymis (panel B) was stained with anti-Vimentin and DAB to stain muscle (black arrow), Mouse brain (panel C) was stained with anti-GluR and DAB to stain membrane proteins (black arrow) and counter stained with hematoxylin.

Ordering Information

Product Name	Storage	Product No.	PKG Size
Blocking One Histo	R	06349-64	50 ml

[Storage] R = Refrigerator

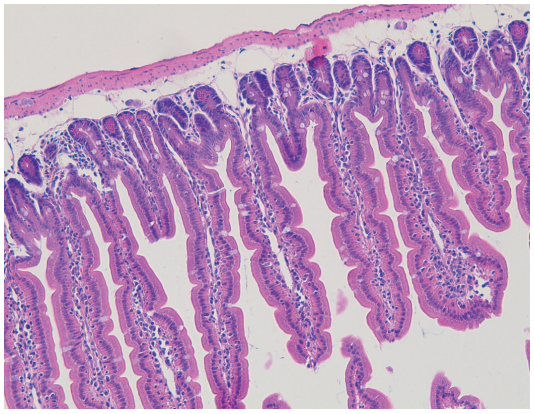
4% - Paraformaldehyde Phosphate Buffer Solution

We offer a 10% neutral formalin solution designed for use as a general fixation buffer in histological specimen preparations. Since this product is based on commonly available formalin, methanol is used as a stabilizer.
If a methanol free formalin solution is required, the substance can be removed by dissolving paraformaldehyde into the prepared solution. However, care is needed when this method is used because paraformaldehyde is extremely toxic and can cause injury if scattered. To deal with this hazard, additional work, such as making the solution alkaline when dissolving the paraformaldehyde, is required. Our product is available in two volume types: 500 ml and a 5 x 10 ml package set.

- **Small unit volume**
- **Enables to immerse histological specimens directly into the solution**
- **Low cost for waste**
- **Ready-to-use**
- **Storable in refrigerator**

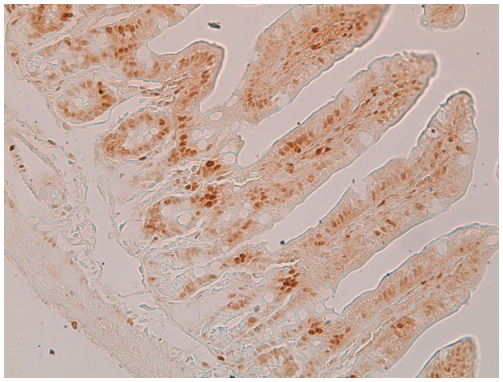
Usage examples

Hematoxylin-eosin staining



Sample:	Mouse small intestine
Fixation method:	Immersion fixation with this product (over night at 4ºC)
Deparaffinization:	Limonene and ethanol

Immunohistological staining



Sample:	Mouse small intestine
Fixation method:	Immersion fixation with this product (overnight at 4ºC)
Deparaffinization:	Limonene and ethanol
Primary antibody:	Anti-PCNA (FL-261) (rabbit)
Staining:	Peroxidase Stain DAB Kit (brown stain) (Product No. 25985-50)

Ordering Information

Product Name	Storage	Product No.	PKG Size
4% - Paraformaldehyde Phosphate Buffer Solution	R	09154-14	5 x 10 ml
		09154-85	500 ml

[Storage] R = Refrigerator

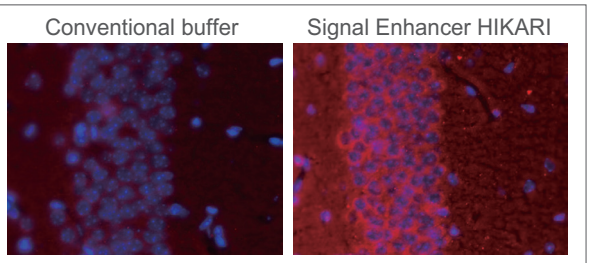
Signal Enhancer HIKARI for Immunostain

Signal Enhancer HIKARI for Immunostain was developed to resolve the problems of low sensitivity and high background often encountered during immunostain procedures such as immunohistochemistry (IHC) and immunocytochemistry. Dilute your antibodies with Signal Enhancer HIKARI for Immunostain instead of conventional diluents such as PBS or TBS before performing your next IHC experiment and witness a remarkable increase in the ability to detect the protein of interest and to eliminate unwanted background.

» **Enhances signals**
» **Reduces background**
» **Ready-to-use reagent**
» **Works with any detection system**

* The kit can also be used in combination with sensitizing systems such as the ABC or polymer complex method.

Applications



Brain tissue section was stained with secondary antibody conjugated with AF555 (red) and counter stained with Hoechst dye (blue).

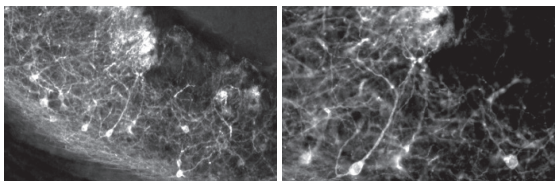
Data courtesy of Dr. R. Ishimura, The Jackson Laboratory

Ordering Information

Product Name	Storage	Product No.	PKG Size
Signal Enhancer HIKARI for Immunostain Trial Set	R	02363-71	1 set (5 ml each)
Signal Enhancer HIKARI for Immunostain Solution A	R	02373-54	20 ml
Signal Enhancer HIKARI for Immunostain Solution B	R	02375-34	20 ml

Anti-GFP (Rat IgG2a), Monoclonal (GF090R)

» **Immunohistochemical application**
» **Rat monoclonal antibody**



Sample	: Mouse brain (nerve cell)
Primary antibody	: Anti-GFP(Rat IgG2a), Mono (1:1000) RT, O/N
Secondary antibody	: Anti-Rat IgG-Cy3 (1:300) RT, 1 hr
Blocking	5% Normal goat serum/0.2% TritonX-100 in PBS
Fixing method	: 4% Paraformaldehyde

Data courtesy of Dr. Y. Yoshihara, RIKEN Brain Science Institute

References for Immunostaining

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3. Anoop Kumar G. Velikkakath *et al. Mol Biol Cell.* **23**(5), 896-909 (2012)
4. Eisuke Itakura *et al. Molecular Biology of the Cell*, **19**, 5360–5372,
5. Keith N. Brown, *et al. Science,* **334**, 480 (2011)
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8. Maiko Ogata *et al. Mol Cell Biol.*, **26**(24), 9220–9231 (2006)
9. Matthew Fogarty *et al. The Journal of Neuroscience*, **27**(41), 10935-10946 (2007)
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11. Toshiaki Nakashiba *et al. Science*, **319**(5867), 1260-4 (2008)
12. Hiromi Takanaga *et al. Stem Cells*, **27**(1), 165-74 (2009)
13. Akinori Yamasaki *et al. Mol. Biol. Cell* , **17** (11), 4876-4887 (2006)
14. Natsumi Ageta-Ishihara *et al. The Journal of Neuroscience*, **29**(43), 13720-13729 (2009)
15. Naoyuki Asada *et al. Journal of Neuroscience*, **30**(26), 8852-8865 (2010)
16. Shizue Ohsawa *et al. Dev Cell,* **20**(3), 315-28 (2011).

Ordering Information

Product Name	Storage	Product No.	PKG Size
Anti-GFP (Rat IgG2a), Monoclonal (GF090R), CC	R	04404-26	50 µg
		04404-84	200 µg

[Storage] R = Refrigerator

High Sensitivity Peroxidase DAB Stain

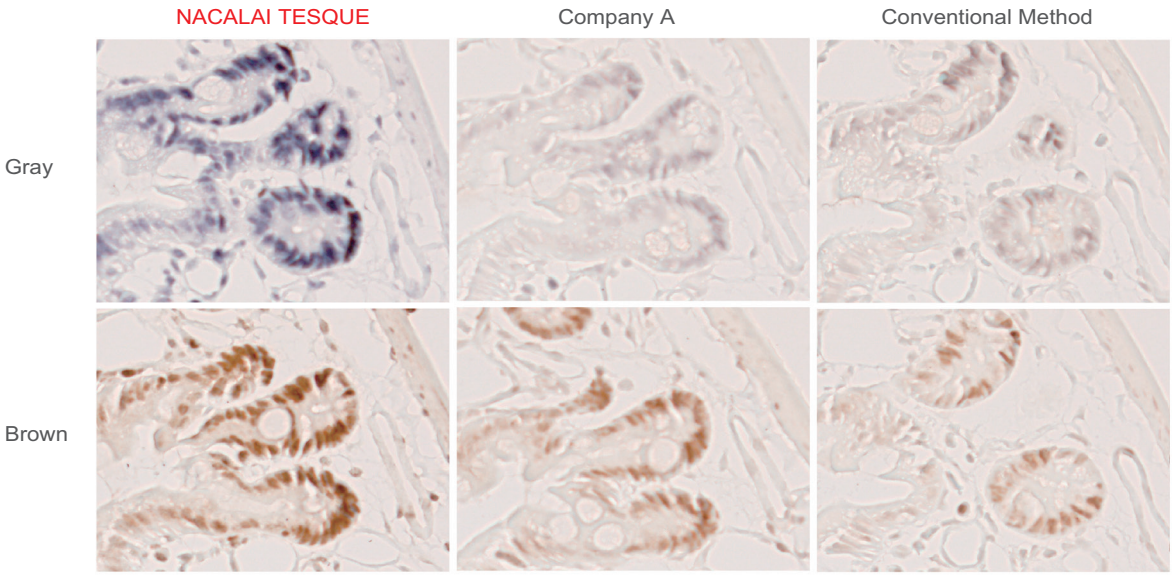
Peroxidase Stain DAB Kit with Metal Enhancer

Peroxidase Stain DAB Kit (Brown Stain) is used to detect horseradish peroxidase (HRP) activity in immunoblotting, immunohistochemistry and *in situ* hybridization.
Metal Enhancer for DAB Stain (Product No. 07388-24) is used to stain peroxidase purplish gray with Peroxidase Stain DAB Kit (Brown Stain)(Product No. 25985-50) in immunoblotting, immunohistochemistry and *in situ* hybridization. The sensitivity of Metal Enahcer for DAB Stain used with Peroxidase Stain DAB Kit (Brown Stain) is about two times higher than the product with Peroxidase Stain DAB Kit (Brown Stain) alone.

- **Increased sensitivity (Just change the solution mix from water to Metal Enhancer for DAB)**
- **Metal Enhancer for DAB Stain stains brown peroxidase purplish gray**
- **RNase, DNase free, applicable to *in situ* hybridization**
- **Eye drop bottle**

Application

Immunohistostaining of mouse small intestines with anti-PCNA antibody (Serial membranes)



Reaction Time: 7 min.

Staining Reagents

NACALAI TESQUE :	(Gray) Peroxidase Stain DAB Kit (Brown Stain) + Metal Enhancer for DAB
	(Brown) Peroxidase Stain DAB Kit (Brown Stain)
Company A :	(Gray) Kit (witth attached nickel solution)
	(Brown) Kit (without attached nickel solution)
Basic method :	(Gray) 0.6mg/ml DAB, 0.03%H_2O_2, 50mM Tris-HCl Buffer pH7.6, 0.03%$NiCl_2$
	(Brown) 0.6mg/ml DAB, 0.03%H_2O_2, 50mM Tris-HCl Buffer pH7.6

The sensitivity achieved when the Peroxidase Stain DAB kit (Brown Stain) is used alone is higher than the competitors' products. However, when used in conjunction with Metal Enhancer for DAB stain, the sensitivity of Peroxidase Stain DAB kit (Brown Stain) is about two times higher than what can be achieved by the Peroxidase Stain DAB kit (Brown Stain) alone.

Ordering Information

Product Name	Storage	Product No.	PKG Size
Peroxidase Stain DAB Kit (Brown Stain)	R	25985-50	1 kit
Metal Enhancer for DAB Stain	RT	07388-24	100 ml

[Storage] RT = Room temperature, R = Refrigerator

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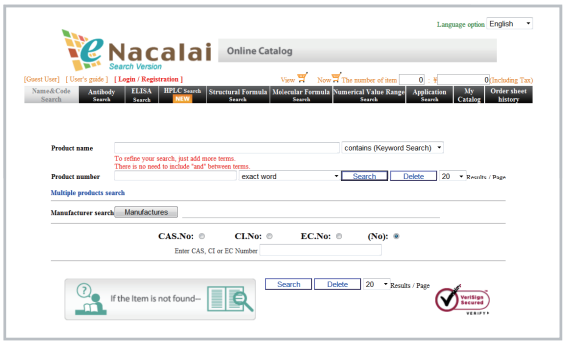

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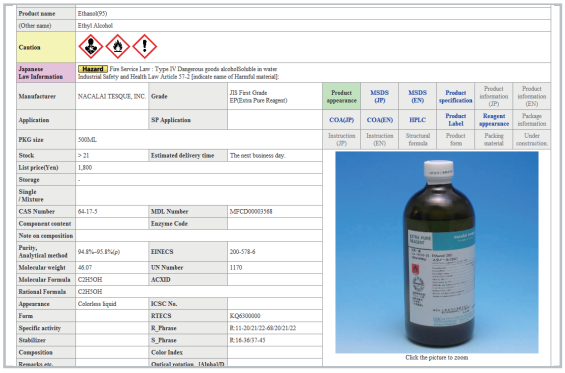

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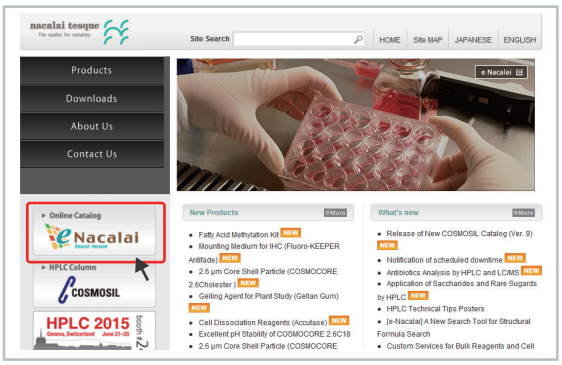

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