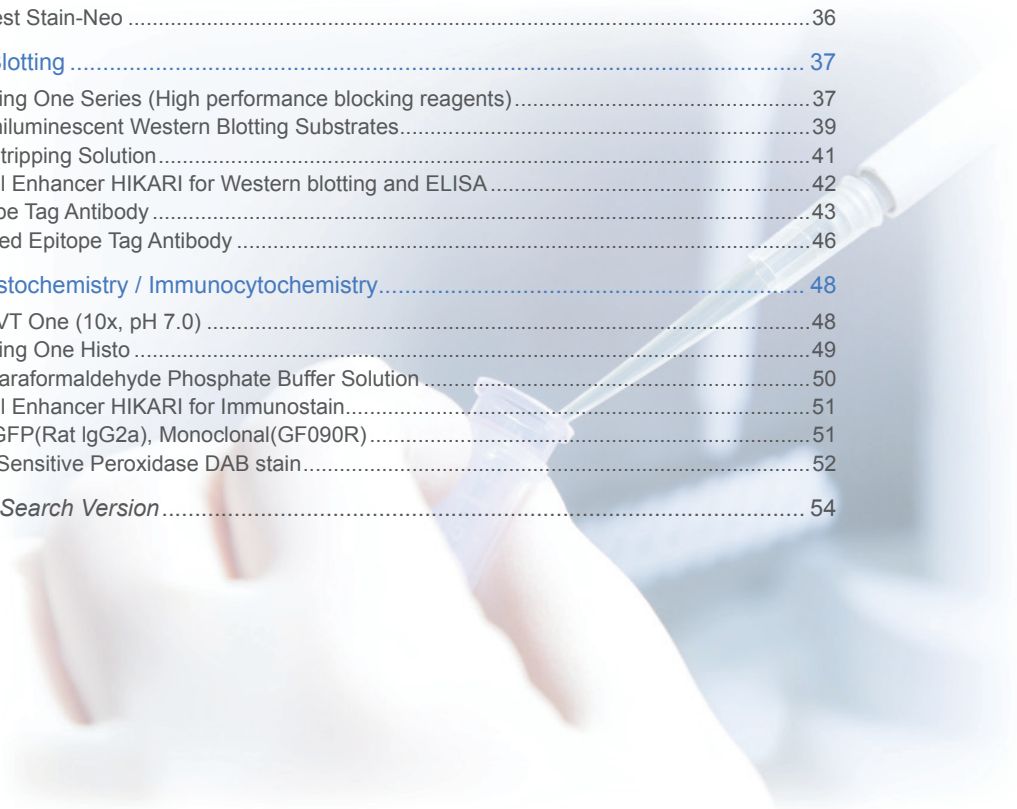


*Taking pride in a contribution
to scientific development*

Biochemical Reagents

2013

Nucleic Acid Electrophoresis and Purification	2
Sepasol-RNA I Super G	2
RNase Quiet (for RNase Decontamination).....	3
IPTG and X-gal Solution	4
Agarose Electrophoresis for Nucleic Acid.....	5
DNA Ladder Markers	8
Ethidium Bromide Solution (0.44mg/ml)	8
Cell Culture.....	10
Cell Culture Reagents.....	10
Balanced Salines	11
Supplements.....	12
Cell Reservoir One (Serum-Free Cell Freezing Medium)	13
Cell Reservoir One, Vitrify (Serum-free Cell Freezing Medium for Vitrification Method)	15
Recombinant Mouse and Human LIF for ES/iPS cells	16
Recombinant Human FGF-basic, Animal-free	17
Vitronectin-398™ (Xeno-free).....	18
Mitomycin C Solution (1mg/ml) for preparation of feeder cells	18
VECELL® 3D Cell Culture Dish.....	19
Medium for Bacteria, Plusgrow II.....	20
Cell Extraction / Protein Assay	21
Zymolyase® (from <i>Arthrobacter luteus</i>).....	21
RIPA Buffer (Cell lysis solution)	22
Tail Lysis Buffer.....	24
Protease Inhibitor Cocktail (EDTA free).....	25
Phosphatase Inhibitor Cocktail (EDTA free)	26
Protein Assay Bicinchoninate Kit	27
Protein Electrophoresis	28
WIDE RANGE Gel Preparation Buffer (4x) for PAGE.....	28
Molecular Weight Markers	31
Prestained Protein Markers	32
Unstained Protein Markers (10x).....	32
Chemi-Lumi One Markers Kit	33
CBB stain One (Ready To Use).....	34
Silver Staining Kit.....	35
Sil-Best Stain One	36
Sil-Best Stain-Neo	36
Western Blotting	37
Blocking One Series (High performance blocking reagents).....	37
Chemiluminescent Western Blotting Substrates.....	39
WB Stripping Solution.....	41
Signal Enhancer HIKARI for Western blotting and ELISA.....	42
Epitope Tag Antibody	43
Labeled Epitope Tag Antibody	46
Immunohistochemistry / Immunocytochemistry.....	48
HistoVT One (10x, pH 7.0)	48
Blocking One Histo	49
4%-Paraformaldehyde Phosphate Buffer Solution	50
Signal Enhancer HIKARI for Immunostain.....	51
Anti-GFP(Rat IgG2a), Monoclonal(GF090R).....	51
High Sensitive Peroxidase DAB stain.....	52
e-Nacalai Search Version.....	54

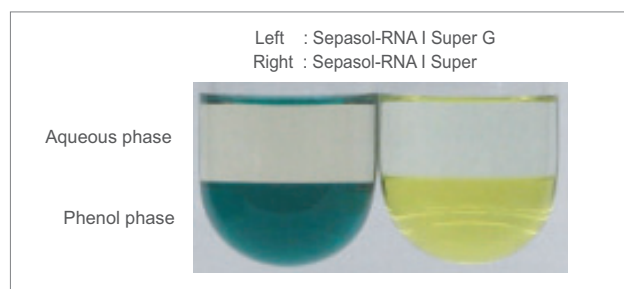


Sepasol-RNA I Super G (for Total RNA Isolation)

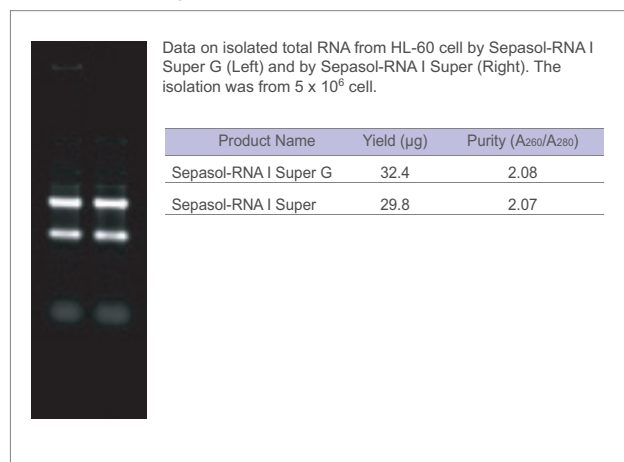
Sepasol-RNA I Super G is ready-to-use, green-phasic solution for isolating total RNA from biological samples such as cell or tissue etc. The green color of dye makes the separation of aqueous and phenol phases easier compared with Sepasol-RNA I Super included in yellow dye.

- » **Easy-to-use** **Ready-to-use green mono-phasic solution**
 Easy to identify interphase compared to Sepasol-RNA I Super
- » **Fast** **Less than 1hr for isolation**
- » **High purity** **Isolates purified RNA for downstream application such as RT-PCR**

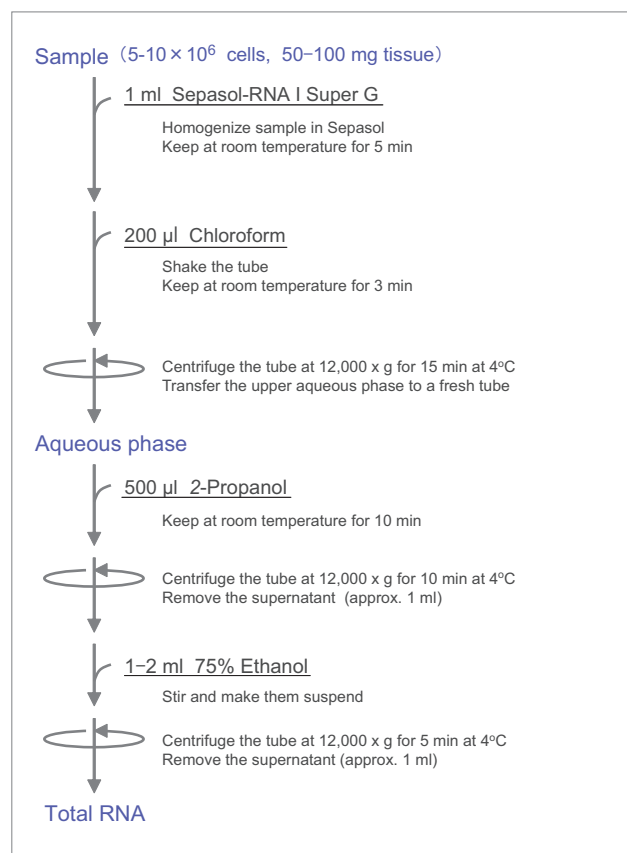
Phenol Phase Color



Yield and Purity of the Isolated RNA



Protocol



Reference

Mouse primary hepatocytes:
 Primary hepatocytes, as well as liver and skeletal muscle:
 HeLa cells:
 Arabidopsis thaliana:
 Plants of tobacco:
 Plants:
 Organs:
 The rosette leaves of Arabidopsis seedlings:
 P19 cells:
 Plants:
 Jurkat cells:
 Hepatocytes:
 Cells:

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Ordering Information

Product Name	Storage	Product No.	PKG Size
Sepasol-RNA I Super G (for animal tissue, plant cells)	R	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

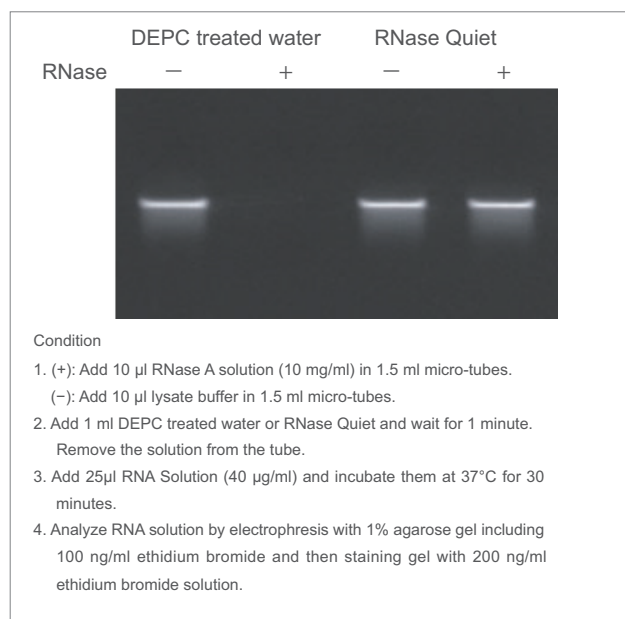
RNase Quiet (for RNase Decontamination)

RNase Quiet is a ready-to-use solution for eliminating RNase contamination. It completely removes RNase contamination from glass, plastic equipments and laboratory tables.

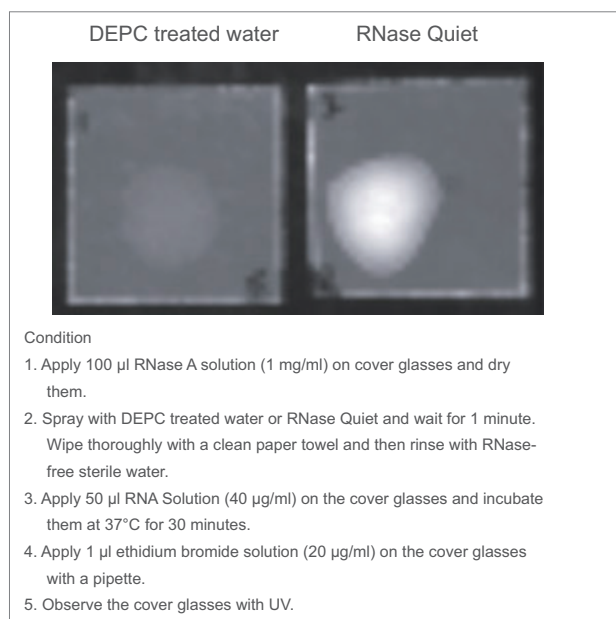
- » Removes RNase contamination effectively
- » Easy to use spray type
- » Easy to wipe with no detergent
- » Non-carcinogenic with no DEPC



Decontamination of 1.5 ml Micro-tubes



Decontamination of Cover Glass



Ordering Information

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

Related Products

Product Name	Storage	Product No.	PKG Size
Phenol, Saturated with TE Buffer Phenol content: approx. 69w/w%, pH7.9	R	26829-54 26829-96	100 ml 400 ml
Phenol, Saturated with TE Buffer Phenol content: approx. 70w/w%, pH6.6, includes a buffer for adjusting pH7.9	R	25969-54 25969-96	100 ml 400 ml
Phenol:Chloroform:Isoamyl Alcohol 25:24:1 Mixed, pH5.2	R	26058-54 26058-96	100 ml 400 ml
Phenol:Chloroform:Isoamyl Alcohol 25:24:1 Mixed, pH6.7	R	25967-74 25967-16	100 ml 400 ml
Phenol:Chloroform:Isoamyl Alcohol 25:24:1 Mixed, pH7.9	R	25970-14 25970-56	100 ml 400 ml
Proteinase K from Tritirachium album	R	29442-14 29442-85	100 mg 500 mg
Proteinase K Solution (>700 U/ml)	R	04130-06 04130-64	2 ml 10 ml
8mol/l-Guanidine Hydrochloride Solution	RT	17356-24	100 ml
6mol/l-Guanidine Thiocyanate Solution	RT	16689-04	100 ml
100g/l-Hexadecyltrimethylammonium Bromide Solution	RT	17472-94	100 ml

[Storage] RT = Room temperature, R = Refrigerator

IPTG and X-gal Solution

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

Isopropyl-β-D-thiogalactopyranoside (IPTG) solution is widely used for induced expression. It is also used in conjunction with X-Gal to determine *E. coli* recombinants in blue/white colony screening and induced expression of recombinant proteins in *E. coli* expression system.

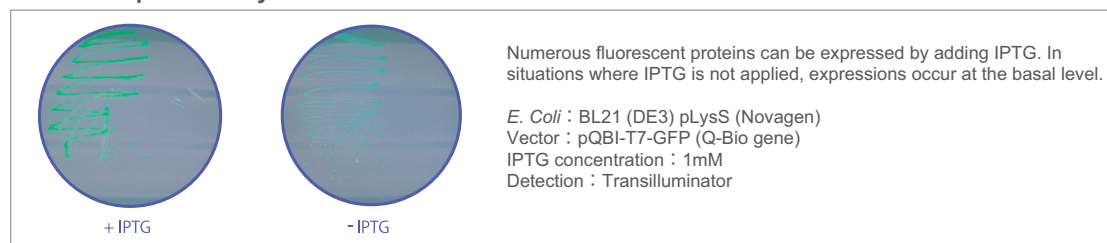


- » 0.22 μm filtrated ready-to-use solution
- » Steriled
- » No need to adjust concentration
- » 1 ml package size allows for easy application

Application

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

Induced expression by IPTG



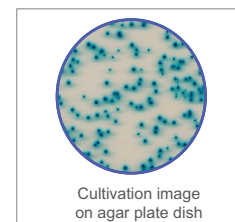
Ordering Information

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

● 5-Bromo-4-chloro-3-indolyl-β-D-galactoside 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(20mg/ml)	F	03971-71	10 x 1 ml

Related Products

Product Name	Storage	Product No.	PKG Size
Isopropyl-β-D-thiogalactopyranoside [IPTG], Dioxane free		19742-36	100 mg
	R	19742-81	1 g
		19742-94	10 g
5-Bromo-4-chloro-3-indolyl-α-D-galactoside [X-α-Gal]		02897-62	25 mg
	R	02897-04	100 mg
5-Bromo-4-chloro-3-indolyl-β-D-galactoside [X-Gal]		05627-86	10 mg
		05627-57	100 mg
	R	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		05646-94	10 mg
	F	05646-36	100 mg

[Storage] R = Refrigerator, F = Freezer

Agarose Electrophoresis for Nucleic Acid

Fine-powdered Agarose

One of the advantages of the fine-powdered agarose is the increased solubility. Not only easy to handle and weigh, it saves your precious time. The most important feature is the high resolution of the gel it produces.

- » **High soluble:** Smaller average particle size for easy dissolution
- » **Simple:** Easy weighing operation
- » **Clear:** 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

Image Comparison

Agarose:	Conventional	Fine-powdered	A Company	B Company
Electrophoresis conditions :				
Gel	: 1.5% Agarose		Sample	: ① Perfect DNA Markers, 0.5-12 kbp 0.1 µg/µl
Buffer	: 1 x TAE Buffer			: ② λ /HindIII digest φ x174/Hinc II digest 0.1 µg/µl
Time	: 75 min			: ③ 100bp DNA Ladder 0.12 µg/µl
Dyeing method	: EtBr			

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

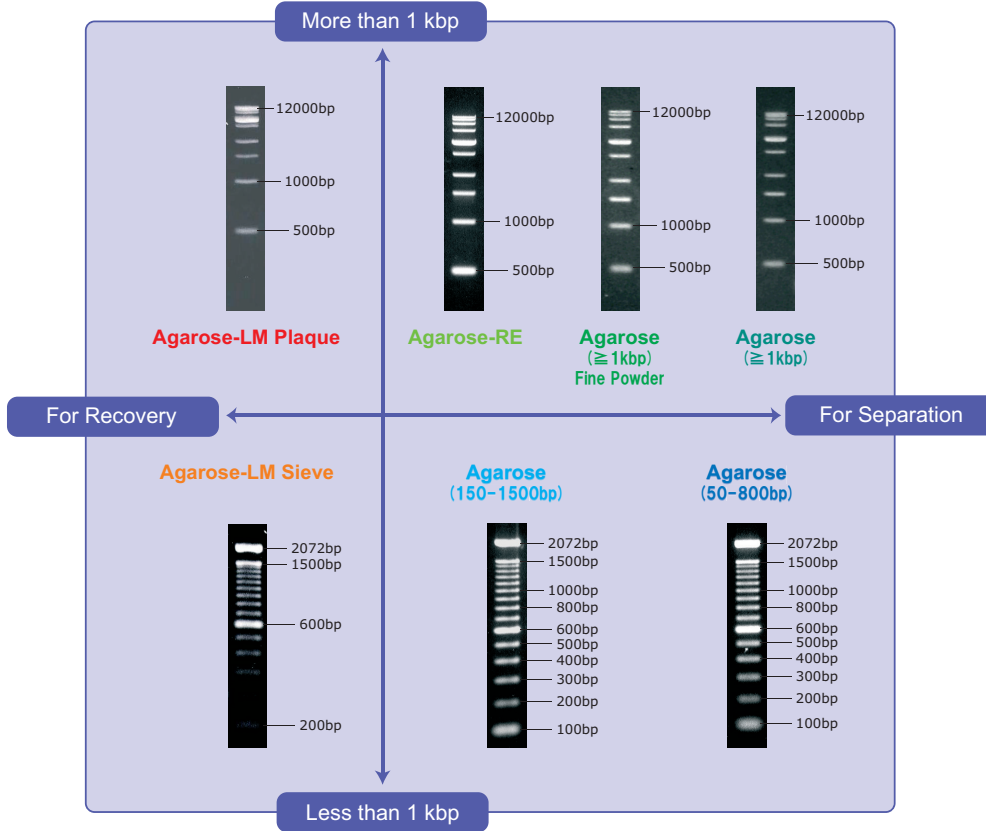
Ordering Information

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

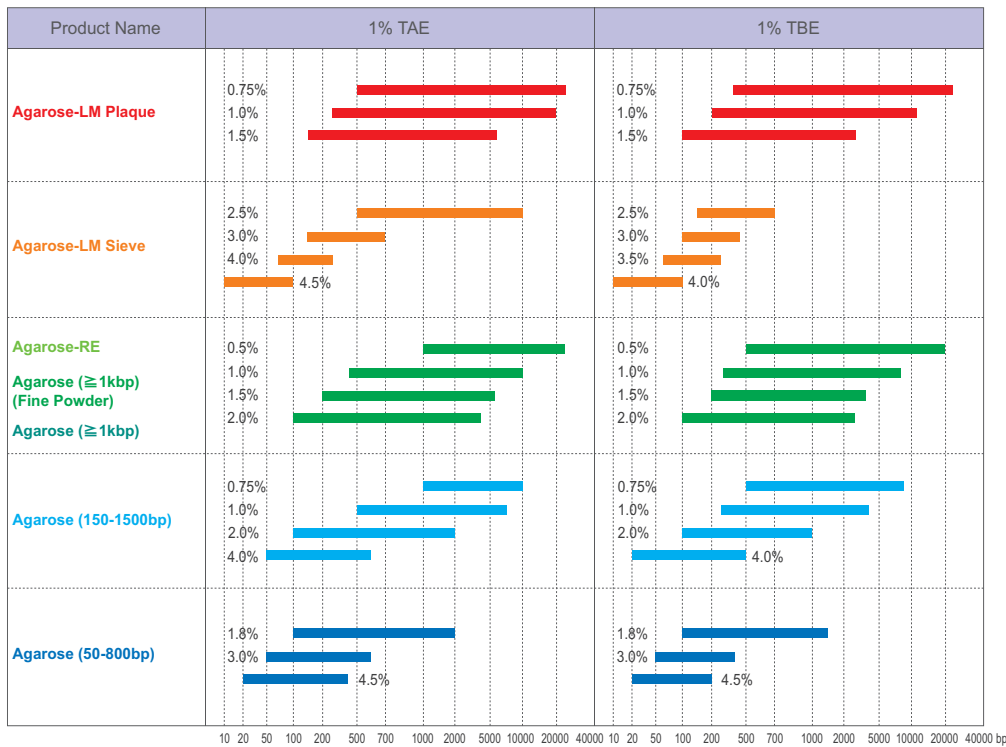
[Storage] RT = Room temperature

● Other Agaroses

NACALAI TESQUE offers many different types of agaroses.



Recommended Concentration of Gel Loading Buffer and Separation Range



Agarose Electrophoresis for Nucleic Acid (continued)

Related Products

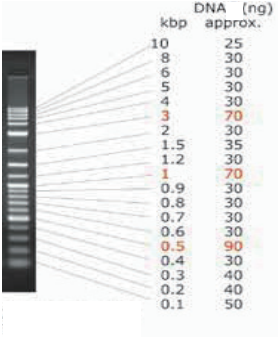
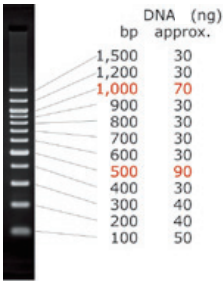
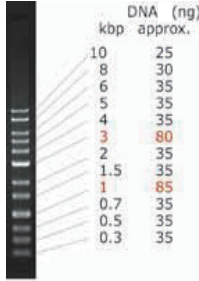
Product Name	Storage	Product No.	PKG Size
Agarose for \geq 1kbp fragment	RT	01163-92	25 g
Type :	\geq 1kbp	01163-76	100 g
Sulfate (%) :	\leq 0.2	01163-05	500 g
Gel Strength :	\geq 2,500 g/cm ² (at 1.5%)		
Gel Point (°C) :	36 ± 1.5		
Electroendosmosis (-mr) :	$0.09 - 0.13$		
Agarose-RE for \geq 1kbp fragment,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

[Storage] RT = Room temperature

DNA Ladder Markers

- » DNA Ladder One (Broad Range) ranging 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
 <p>DNA (ng) approx.</p> <p>10 kbp 25</p> <p>8 30</p> <p>6 30</p> <p>5 30</p> <p>4 30</p> <p>3 70</p> <p>2 30</p> <p>1.5 35</p> <p>1.2 30</p> <p>1 70</p> <p>0.9 30</p> <p>0.8 30</p> <p>0.7 30</p> <p>0.6 30</p> <p>0.5 90</p> <p>0.4 30</p> <p>0.3 40</p> <p>0.2 40</p> <p>0.1 50</p> <p>2% Agarose gel/TAE DNA marker 5 µl Concentration 0.15 g/l</p>	 <p>DNA (ng) approx.</p> <p>1,500 30</p> <p>1,200 30</p> <p>1,000 70</p> <p>900 30</p> <p>800 30</p> <p>700 30</p> <p>600 30</p> <p>500 90</p> <p>400 30</p> <p>300 40</p> <p>200 40</p> <p>100 50</p> <p>2.5% Agarose gel/TBE DNA marker 5 µl Concentration 0.1 g/l</p>	 <p>DNA (ng) approx.</p> <p>10 25</p> <p>8 30</p> <p>6 35</p> <p>5 35</p> <p>4 35</p> <p>3 80</p> <p>2 35</p> <p>1.5 35</p> <p>1 85</p> <p>0.7 35</p> <p>0.5 35</p> <p>0.3 35</p> <p>0.8% Agarose gel/TAE DNA marker 5 µl Concentration 0.1 g/l</p>

Buffer components

0.03% Bromophenol Blue, 0.1% Orange G, 6% Glycerol, 10mM EDTA and 10mM Tris-HCl (pH8.0)

Note: The bands of red numbers have increased intensity to serve as reference bands.

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

Ethidium Bromide Solution (0.44 mg/ml)

Ethidium Bromide Solution (0.44 mg/ml) is easy and safe to use because of 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 drop of Ethidium Bromide Solution (0.44 mg/ml) is 45 µl.
- 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.
- 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] RT = Room temperature, R = Refrigerator



Ethidium Bromide Solution (0.44 mg/ml) (continued)

Related Products

Product Name	Storage	Product No.	PKG Size
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
Ethidium Bromide Solution (10 mg/ml)	R	14631-94	10 ml
Ethidium Bromide Solution (0.44 mg/ml)	R	02393-94	10 ml
Nucleic Acid Loading Dye Markers, DEPC treated, Nuclease tested	RT	25354-81	1 ml
		25354-94	5 ml
Sil-Best Stain-Neo for Protein and Nucleic Acid/PAGE	R	05773-11	1 set
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
0.5mol/l-EDTA Solution (pH 8.0)	RT	14347-21	1 L
Hybridization Solution	RT	04376-64	100 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
1mol/l-Magnesium Sulfate Solution, Sterile-filtered and Autoclaved	RT	20941-44	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
3mol/l-Sodium Acetate Buffer Solution (pH 5.2)	RT	31138-31	1 L
5mol/l-Sodium Chloride Solution	RT	31334-51	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
Tris Buffered Saline (10x) (pH 7.4)	RT	35439-71	1 L
1mol/l-Tris-HCl Buffer Solution (pH 7.6)	RT	35436-01	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

- » Sterilized by membrane filter (pore size 0.1 µm)
- » Sterility tested (for Bacteria, Fungus and Mycoplasma)
- » Endotoxin tested
- » pH 7.1-7.5



Compositions

Medium Name	Product No.	Phenol Red	L-Glutamine	Sodium Hydrogen Carbonate	Glucose	HEPES	Ribonucleoside	Deoxyribonucleoside	Sodium Pyruvate	Pyridoxine Hydrochloride	Pyridoxal Hydrochloride	Others
DMEM	08456	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.0 g/l				<input type="checkbox"/>	<input type="checkbox"/>		
DMEM	08490		<input type="checkbox"/>	<input type="checkbox"/>	1.0 g/l				<input type="checkbox"/>	<input type="checkbox"/>		
DMEM	08457	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.5 g/l	25 mM				<input type="checkbox"/>		
DMEM	08458	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.5 g/l				<input type="checkbox"/>	<input type="checkbox"/>		
DMEM	08459	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.5 g/l					<input type="checkbox"/>		
DMEM	08489			<input type="checkbox"/>	4.5 g/l					<input type="checkbox"/>		
DMEM	08488	<input type="checkbox"/>		<input type="checkbox"/>	4.5 g/l					<input type="checkbox"/>		
DMEM	11584	<input type="checkbox"/>		<input type="checkbox"/>	4.5 g/l				<input type="checkbox"/>	<input type="checkbox"/>		
DMEM	11585	<input type="checkbox"/>		<input type="checkbox"/>	4.5 g/l	25 mM				<input type="checkbox"/>		
DMEM (No Glucose)	09891	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>		
DMEM/Ham's F-12	08460	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.15 g/l	15 mM			<input type="checkbox"/>	<input type="checkbox"/>		Contains Non - Essential Amino Acids
DMEM/Ham's F-12	05177		<input type="checkbox"/>	<input type="checkbox"/>	3.15 g/l	15 mM			<input type="checkbox"/>	<input type="checkbox"/>		Contains Non - Essential Amino Acids
DMEM/Ham's F-12	11581	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.15 g/l				<input type="checkbox"/>	<input type="checkbox"/>		Contains Non - Essential Amino Acids
DMEM/Ham's F-12	11582		<input type="checkbox"/>	<input type="checkbox"/>	3.15 g/l				<input type="checkbox"/>	<input type="checkbox"/>		Contains Non - Essential Amino Acids
DMEM/Ham's F-12	11583	<input type="checkbox"/>		<input type="checkbox"/>	3.15 g/l	15 mM			<input type="checkbox"/>	<input type="checkbox"/>		Contains Non - Essential Amino Acids
DMEM/Ham's F-12 (No Glucose)	09893	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Contains Non - Essential Amino Acids
IMDM	11506	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		25 mM			<input type="checkbox"/>		<input type="checkbox"/>	Contains Non - Essential Amino Acids
Ham's F-12	17458	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.8 g/l				<input type="checkbox"/>	<input type="checkbox"/>		Contains Non - Essential Amino Acids
MEM	21442	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.0 g/l						<input type="checkbox"/>	
MEM	21443	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.0 g/l						<input type="checkbox"/>	Contains Non - Essential Amino Acids
MEM (No Glucose)	09848	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							<input type="checkbox"/>	Contains Non - Essential Amino Acids
α-MEM	21444	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.0 g/l		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Contains Non - Essential Amino Acids
α-MEM	21445	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.0 g/l				<input type="checkbox"/>		<input type="checkbox"/>	Contains Non - Essential Amino Acids
RPMI1640	30263	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.0 g/l	25 mM				<input type="checkbox"/>		
RPMI1640	30264	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.0 g/l					<input type="checkbox"/>		
RPMI1640	06261		<input type="checkbox"/>	<input type="checkbox"/>	2.0 g/l					<input type="checkbox"/>		
RPMI1640	05176	<input type="checkbox"/>		<input type="checkbox"/>	2.0 g/l					<input type="checkbox"/>		
RPMI1640 (No Glucose)	09892	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>		

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

Cell Culture Reagents (continued)

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
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
DMEM (4.5g/l Glucose) with L-Gln, without Sodium Pyruvate, liquid	R	08459-35	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-**	500 ml
DMEM (4.5g/l Glucose) with HEPES, without L-Gln and Sodium Pyruvate, liquid	R	11585-**	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-**	500 ml
DMEM/Ham's F-12 with L-Gln and Sodium Pyruvate, without HEPES and Phenol Red, liquid	R	11582-**	500 ml
DMEM/Ham's F-12 with Sodium Pyruvate and HEPES, without L-Gln, liquid	R	11583-**	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
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

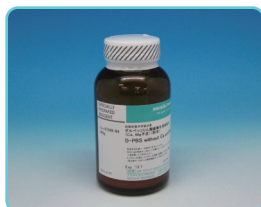
Balanced Salines

- » Sterilized by membrane filter (pore size 0.2 µm), tested for Bacteria, Fungus and Mycoplasma
- » Endotoxin tested

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
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 membrane filter (pore size 0.2 μm)
- » Sterility tested (for Bacteria, Fungus and Mycoplasma)
- » Endotoxin tested

MEM Non-Essential Amino Acids Solution (100x)

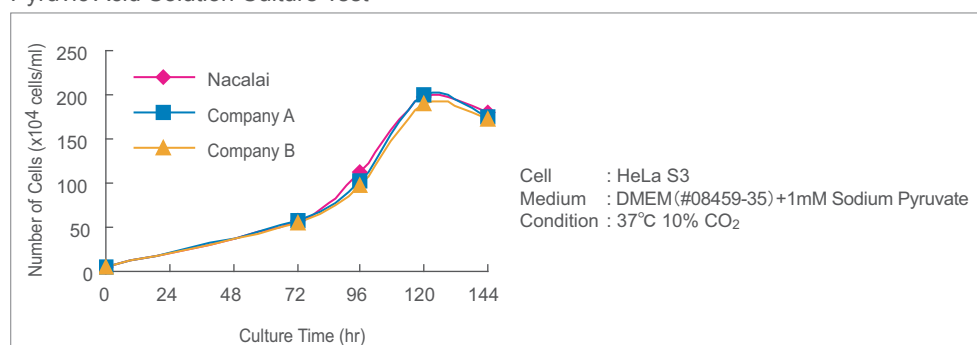
Composition: Non-Essential Amino Acids 10mM each

Non-Essential Amino Acids	(mg/ml)
L-Alanine	890
L-Asparagine, H ₂ O	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



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

Cell Dissociation Reagents

Ordering Information

Product Name	Storage	Product No.	PKG Size
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] R = Refrigerator, F = Freezer

Supplements (continued)

• 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

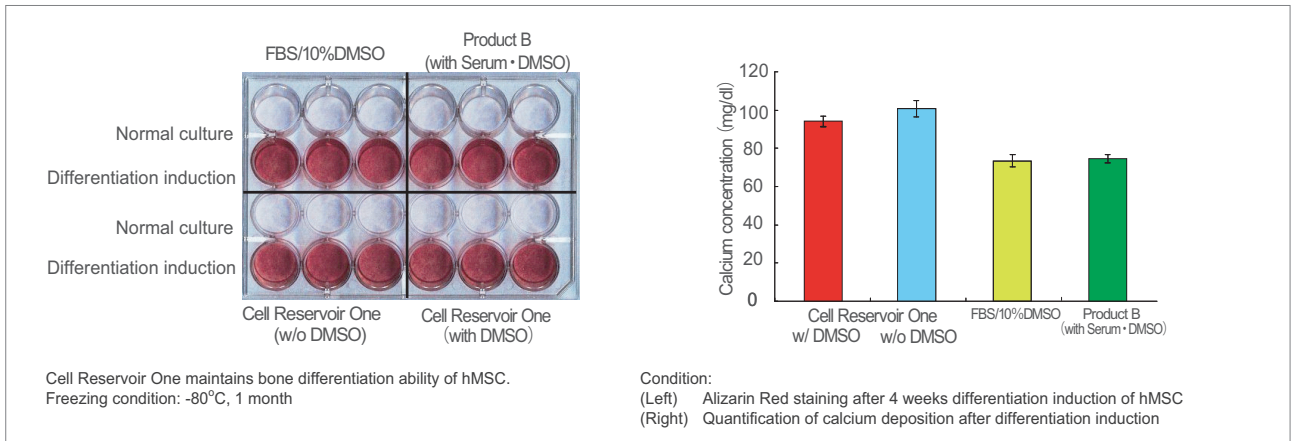
Cell Reservoir One (Serum-free Cell Freezing Medium for Slow Freezing Method)

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 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.

- » **Ready-to-use solution**
- » **Serum-free with no animal derived components**
- » **High cell recovery and viability**

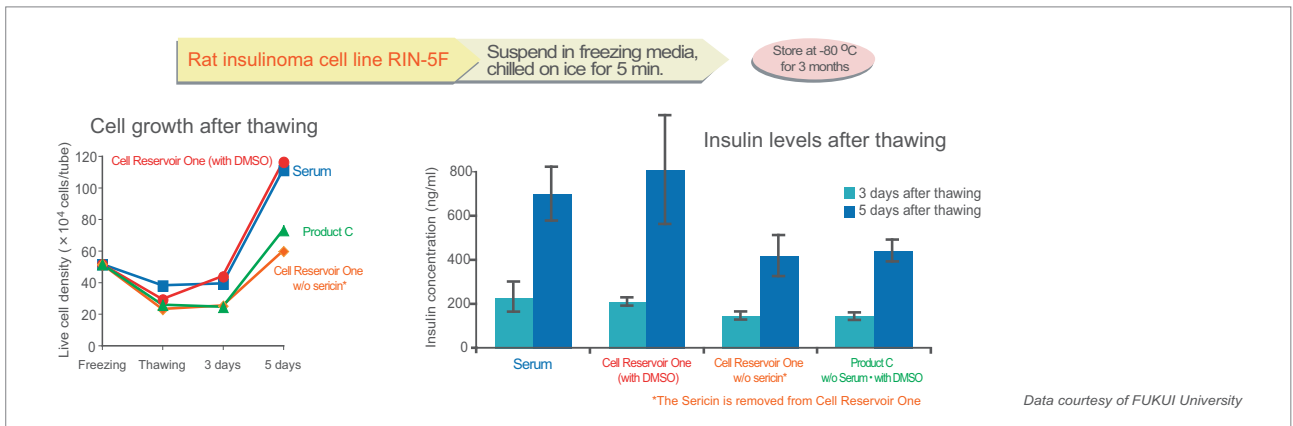
Application 1

Human Mesenchymal Stem Cell (hMSC): Bone Differentiation



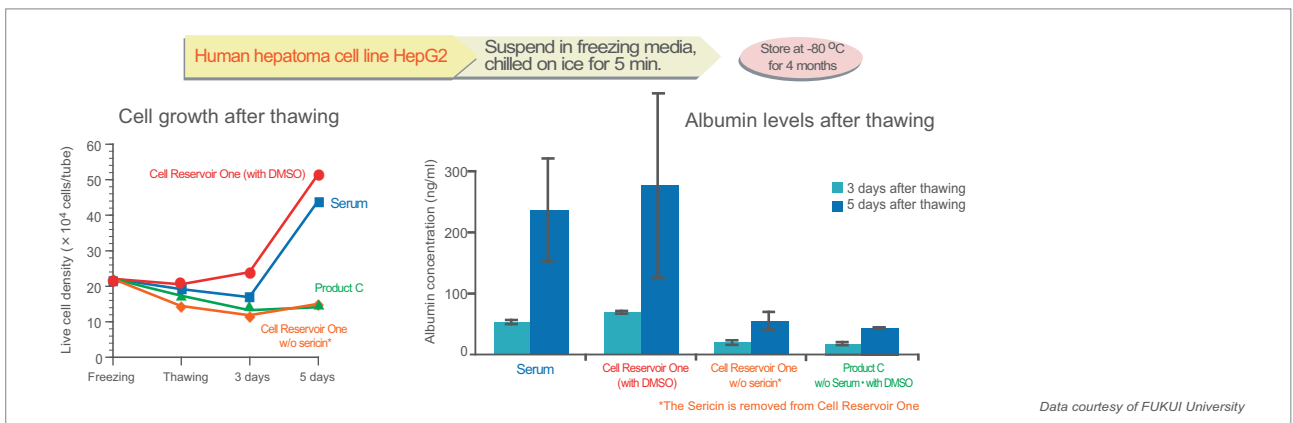
Application 2

Pancreatic Islet Transplantation Model



Application 3

Bioartificial Liver Model



Ordering Information

Product Name	Storage	Product No.	PKG Size
Cell Reservoir One Trial Set (w/ DMSO & w/o DMSO)	R	09550-01	1 set
Cell Reservoir One (with DMSO)	R	07485-44	100 ml
Cell Reservoir One (without DMSO)	R	07579-24	100 ml

[Storage] R = Refrigerator

Cell Reservoir One, Vitriify (Serum-free Cell Freezing Medium for Vitrification Method)

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 (Vitriify) 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 (Vitriify) 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)**

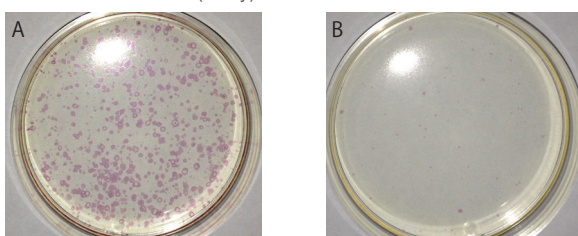
Application

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 (Vitriify)

B: DAP213



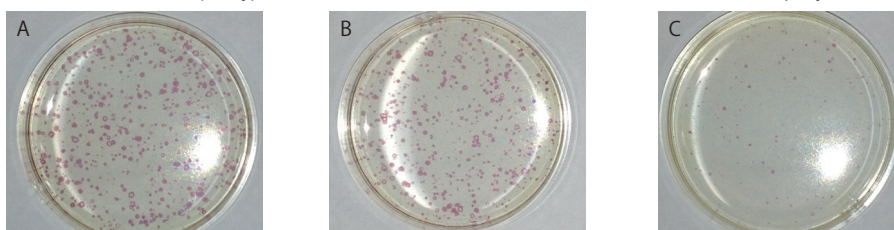
Human iPS cells were cryopreserved for more than 2 weeks in Cell Reservoir One (Vitriify) or DAP213. Viability was detected using Alkaline Phosphatase 4 days after thawing. Cell Reservoir One (Vitriify) showed high survival rate, while most of cells in DAP213 were dead.

Freezing protocol: 15 seconds

A: Cell Reservoir One (Vitriify)

B: DAP213

C: Company A



Data courtesy of a customer

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

Conclusion

Cell Reservoir One (Vitriify) 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 (Vitriify) 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 (Vitriify)	672	563	-
B	DAP213	37	479	-
C	Company A	-	-	172

Ordering Information

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

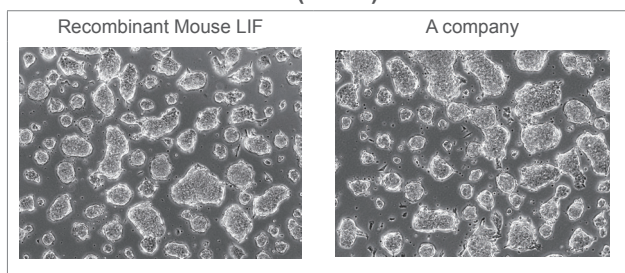
[Storage] R = Refrigerator

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 181 amino acids and have a molecular mass of 20kDa. The mLIF/hLIF are purified by proprietary techniques using HPLC and FPLC[®] chromatography.

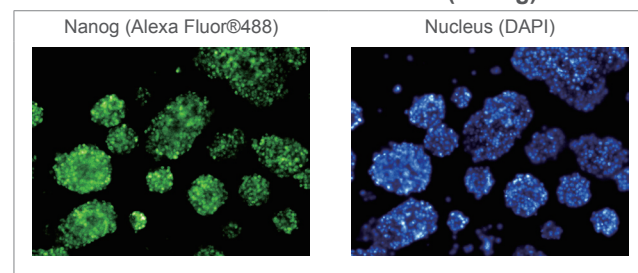
Applications

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)



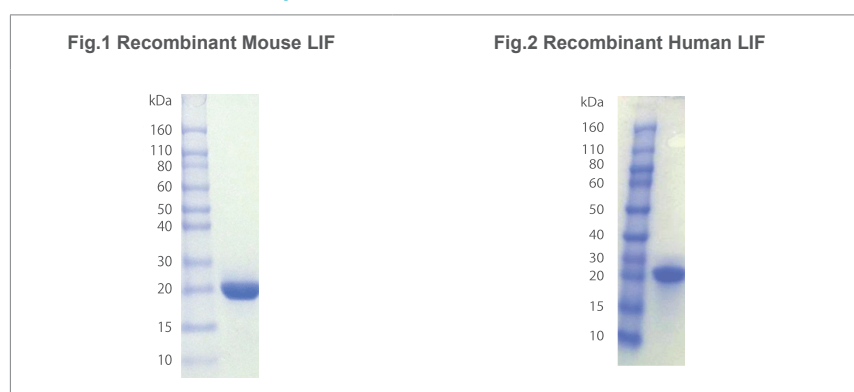
Nanog is detected in most of cells when applying this protein.

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	Bioactivity	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 μ m filtered sterile liquid, PBS with 0.02% Tween [®] 20 and 1% BSA	
Storage		Maintain at 4°C for 12 months. Freeze-thaw should be avoided as it results in loss of activity	
Recommended concentration		107 units, identical 100 μ g of pure protein, are sufficient to treat 10 L of ES cell.	0.5×10^7 units, identical 50 μ g 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



Ordering Information

Product Name	Storage	Product No.	PKG Size
Recombinant Mouse LIF	R	NU0012-1	1.0 ml (10^8 units/ml)
		NU0012-2	1.0 ml (10^8 units/ml)
Recombinant Human LIF	R	NU0013-1	1.0 ml (10^8 units/ml)
		NU0013-2	1.0 ml (0.5×10^7 units/ml)

[Storage] R = Refrigerator

Recombinant LIF Proteins are produced by Nacalai USA, Inc.

FPLC[®] is a registered trademark of GE Healthcare.

Alexa Fluor[®] is a registered trademark of Life Technologies.

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 to remain cell in an undifferentiated state.

Cell Culture of NIH/3T3 Cells

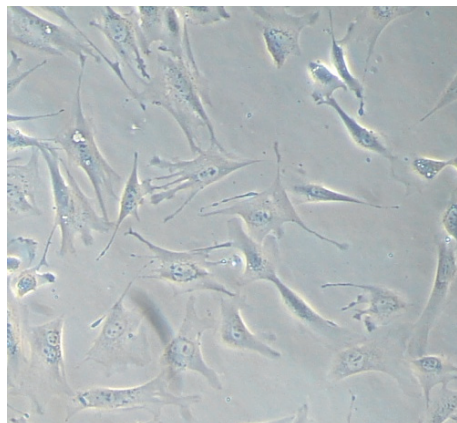


Figure 1
NIH/3T3 cells (ATCC: CCL-1668) were cultured in the absence of bFGF.

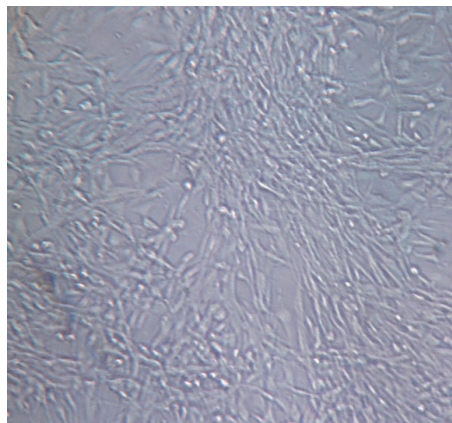
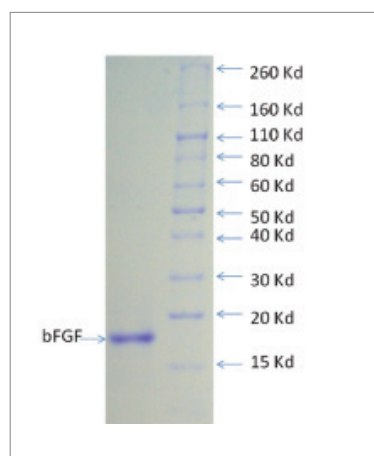


Figure 2
NIH/3T3 cells were cultured with 0.25 ng/ml bFGF in serum-free medium at 37°C, 5% CO₂ for 24 hours.

SDS-PAGE of Human bFGF-basic



Source	<i>Escherichia Coli</i> .
Purity	Greater than 98% as determined by SDS-PAGE
Endotoxin	Less than 0.01 ng/μg cytokine as determined by the LAL assay
Bioactivity	ED ₅₀ = 0.1-0.3 ng/ml as determined by the dose dependent proliferation of NIH 3T3 cells (figure. 1,2)
Formulation	Sterile filtered and lyophilized from Tris-HCl buffer (10 mM Tris-HCl pH 7.5, 150 mM NaCl).
Storage	bFGF is shipped at 4°C with ice packs. Lyophilized bFGF is stable at -20°C for up to 12 months from date of receipt.
Reconstitution	Centrifuge vial before opening. It is recommended to reconstitute bFGF in sterile 10 mM Tris-HCl, pH 7.5 to yield a stock solution of 0.1 mg/ml of bFGF. It is stable for up to 6 months when stored at -20°C and up to 12 months when stored at -80°C. Multiple freeze/thaw cycles will result in significant loss of activity.

Ordering Information

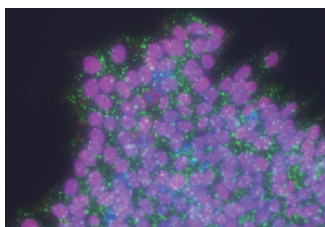
Product Name	Storage	Product No.	PKG Size
Recombinant Human FGF-basic, Animal-free	F	NU0005-1	10 μg
		NU0005-3	50 μg
		NU0005-6	1 mg

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

Application

1. As coating matrix protein for maintaining long-term ES or iPS cell culture before combining with E8 culture medium.
2. As an excellent coating matrix material of 11R-tagged recombinant TF intracellular delivery for protein derived iPS protocol with extremely low-level non-specific interaction.

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 - Sterile tested for cell culture, do not solidify in freezer**
- » **High stability - For 2 years in freezer, protected from light**

Components

1mg/ml of Mitomycin C in 10v/v% Ethanol and 90v/v% Ethylene Glycol Solution



Ordering Information

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

Related Products

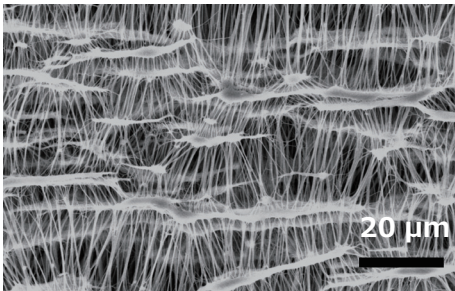
Product Name	Storage	Product No.	PKG Size
Y-27632	F	08945-71	1 mg
		08945-84	5 mg

[Storage] F = Freezer

VECELL[®] 3D Cell Culture Dish

- » Reflection of normal cell morphology and behavior
- » Permeable membrane that resembles *in vivo* conditions
- » Suitable for toxicology, drug development, cancer and stem cell research

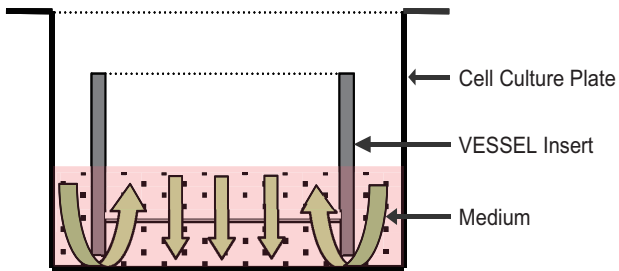
Membrane Structure



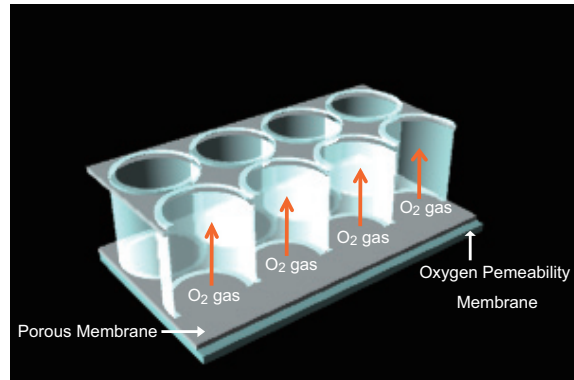
Fibril Length: 50-200 μm
 Fibril : 2-10 μm
 Membrane Thickness: 50-70 μm
 Porosity: 90%

Cross-section of Wells

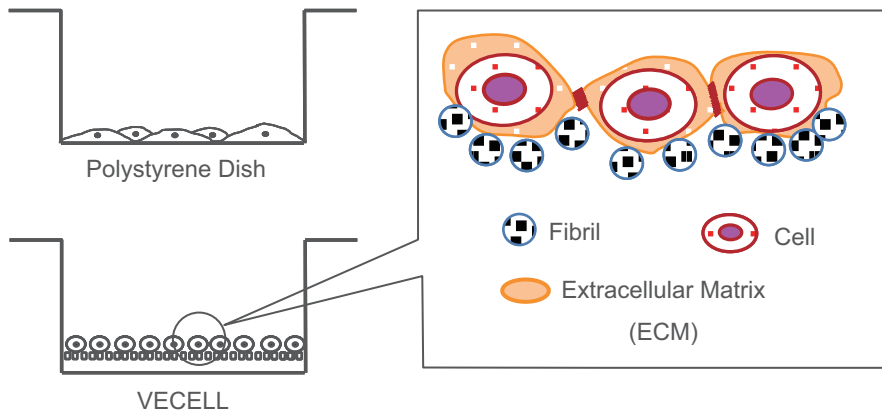
6well and 24well



96well Plate



Difference between Normal Plastic Dish and VECCELL[®] Membrane Culture Dish



Ordering Information

Product Name	Storage	Product No.	PKG Size
Preset VECCELL [®] -12 (12 mm, 24 well)	RT	PSVC12-10	10 plates
Preset VECCELL [®] -30 (30 mm, 6 well)	RT	PSVC30-10	10 plates
VECELL [®] 96 well plate BK	RT	V96WPB-10	10 plates

[Storage] RT = Room temperature

VECELL[®] cell culture dishes are produced by Vecell, Inc.

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

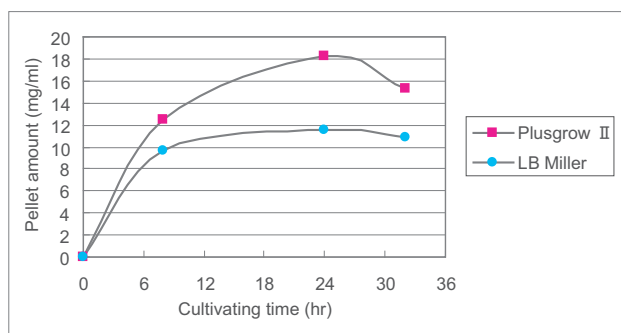


Figure 1. Bacteria growth curve

E. coli is first cultivated in ampicillin (50 µg/ml) then added to the medium at 37°C 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

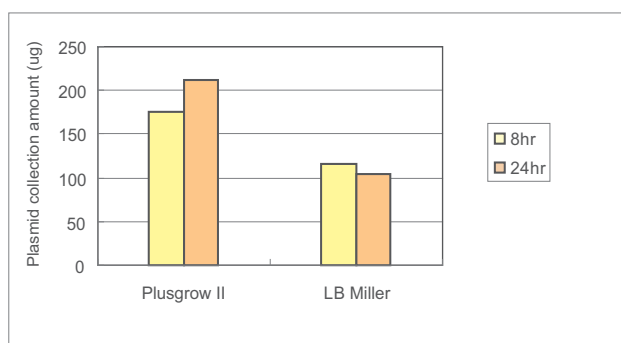


Figure 2. Plasmid collection amount (per 1ml of culture fluid)

Plasmid is collected and purified via the alkali-SDS method (containing phenol extract) following 8 and 24 hours of *E. coli* cultivation.

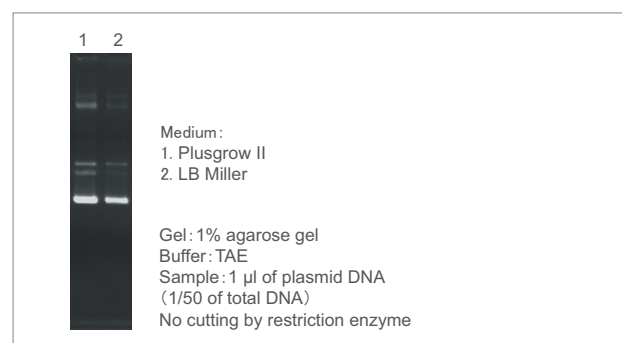


Figure 3. Electrophoresis image of collection of plasmid (following 24 hours of cultivation)

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 Measure 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

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 informations 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 ^(*)			
	β -1,3-glucanase	approx. 1.5×10^6 units/g	approx. 1.0×10^7 units/g
	protease	approx. 1.0×10^4 units/g	approx. 1.7×10^4 units/g
	mannanase	approx. 1.0×10^6 units/g	approx. 6.0×10^4 units/g
Contaminants		Amylase, Xylanase, Phosphatase	Trace amount
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
		60°C	90% of the lytic activity is lost after storage for 3 months
		Lytic activity is lost on incubation for 5 minutes	
Specificity (Lytic Spectrum)		<i>Ashbya</i> , <i>Candida</i> , <i>Debaryomyces</i> , <i>Eremothecium</i> , <i>Endomyces</i> , <i>Hansenula</i> , <i>Hanseniaspora</i> , <i>Kloeckera</i> , <i>kluveromyces</i> , <i>Lipomyces</i> , <i>Metschnikowia</i> , <i>Pichia</i> , <i>Pullularia</i> , <i>Torulopsis</i> , <i>Saccharomyces</i> , <i>Saccharomycopsis</i> , <i>Saccharomyces</i> , <i>Schwanniomycetes</i> , 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)

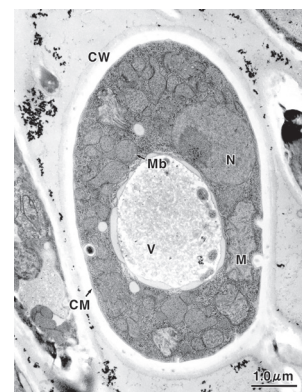
1/15M Phosphate buffer : 5 ml (pH7.5)

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.

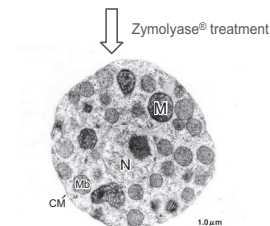
Reference

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- Herrero Enrique, Sanz Pascual, Sentandreu Rafael: *J. Gen. Microbiol.*, **133** (10), 2895 (1987)



Electron microscopical photo of yeast cell (*Candida tropicalis*)

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



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

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

Zymolyase[®] is a registered trademark of Kirin Holdings Company, Limited.

RIPA Buffer (Cell Lysis Solution)

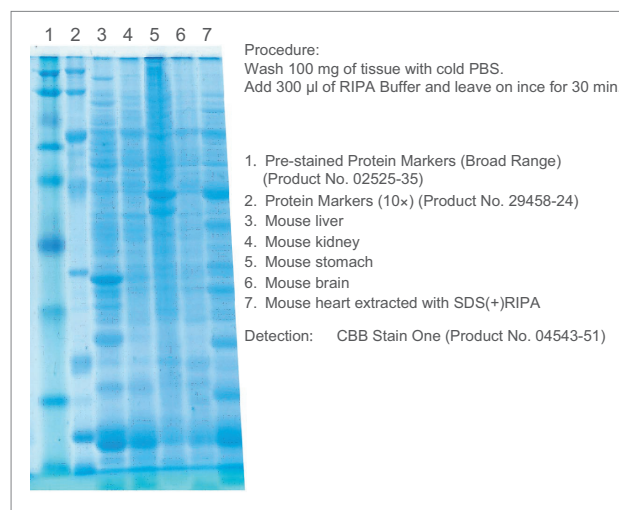
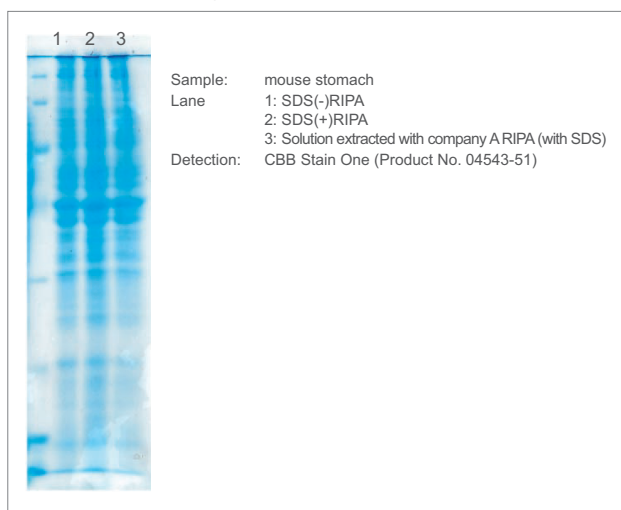
RIPA Buffer is a ready-to-use solution containing a variety of surfactants and protease inhibitors. Proteins lysed with RIPA Buffer can be used in western blotting or ELISA or immunoprecipitation testing regimes.

- » **Ready-to-use**
- » **Contains protease inhibitors**
- » **Unmixes SDS solution for immunoprecipitation**
- » **Enables quantification via the Protein Assay Bicinchoninate Kit**

Effect of protein extraction and immunoprecipitation with SDS

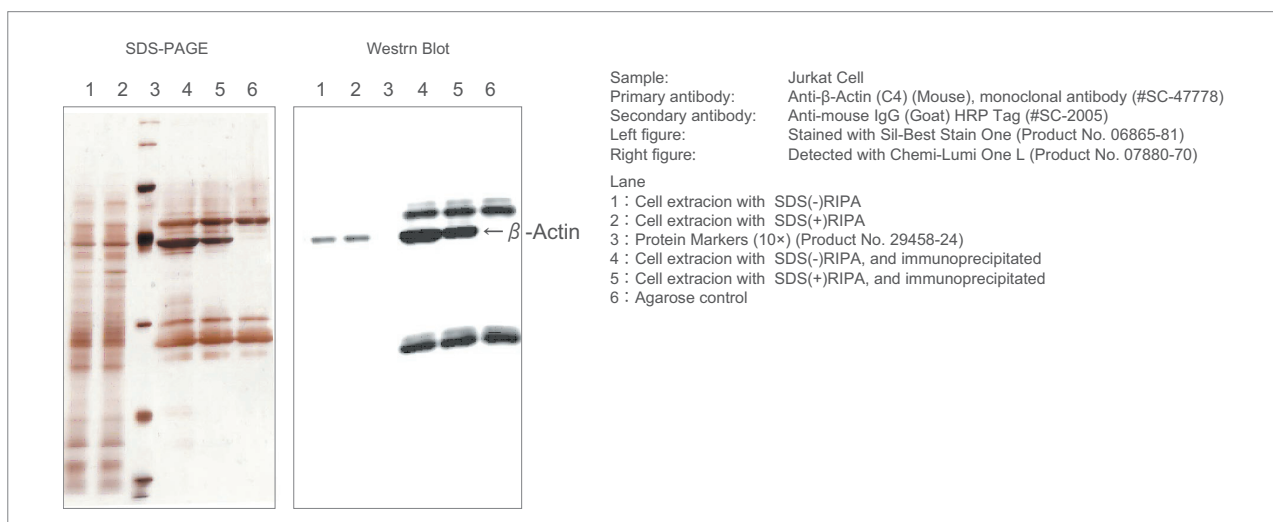
Protein Electrophoresis

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



Immunoprecipitation

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



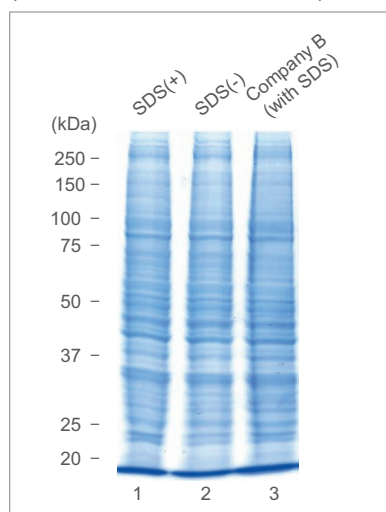
For protein extraction, SDS(+) provides high resolution and is capable of producing an extract from any tissue. For immunoprecipitation, SDS(-) offers high tissue resolution. Note that the SDS solution comes unmixed with RIPA Buffer. RIPA Buffer is suitable for both protein extraction and immunoprecipitation uses.

RIPA Buffer (Cell Lysis Solution) (continued)

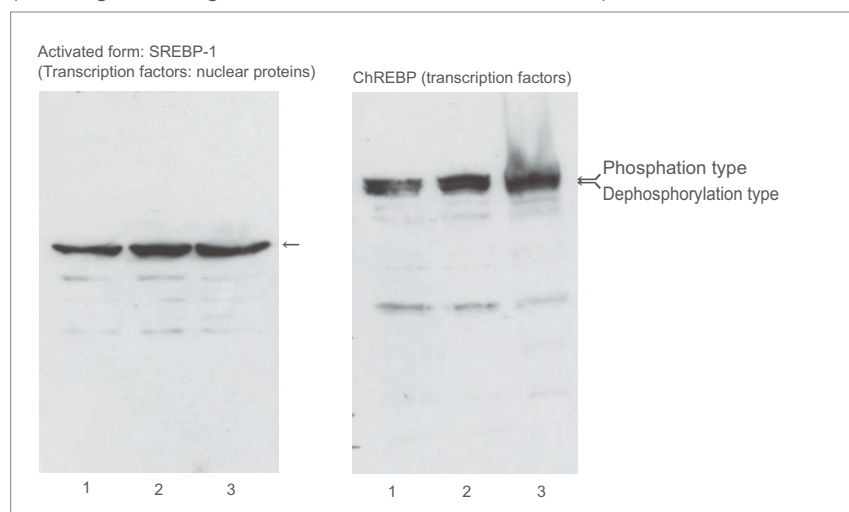
Application

Detection of Transcription Factors (SREBP-1, ChREBP) with Western Blotting

CBB Stain
(Stained with CBB Stain One)



Western Blotting
(Blocking; Blocking One, Detection: Chemi-Lumi One L)



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

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

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

Related Products

Product Name	Storage	Product No.	PKG Size
Phosphatase Inhibitor Cocktail	R	07574-61	1 ml
Phosphatase Inhibitor Cocktail (EDTA free)	R	07575-51	1 ml
CBB Stain One (Ready To Use)	RT	04543-51	1 L
		04543-64	5 L
Chemi-Lumi One L	R	07880-70	1 kit
Sil-Best Stain One	R	06865-81	1 set
Blocking One	R	03953-95	500 ml
Blocking One-P	R	05999-84	200 ml
WB Stripping Solution	R	05364-55	500 ml
WB Stripping Solution Strong	R	05677-65	500 ml

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

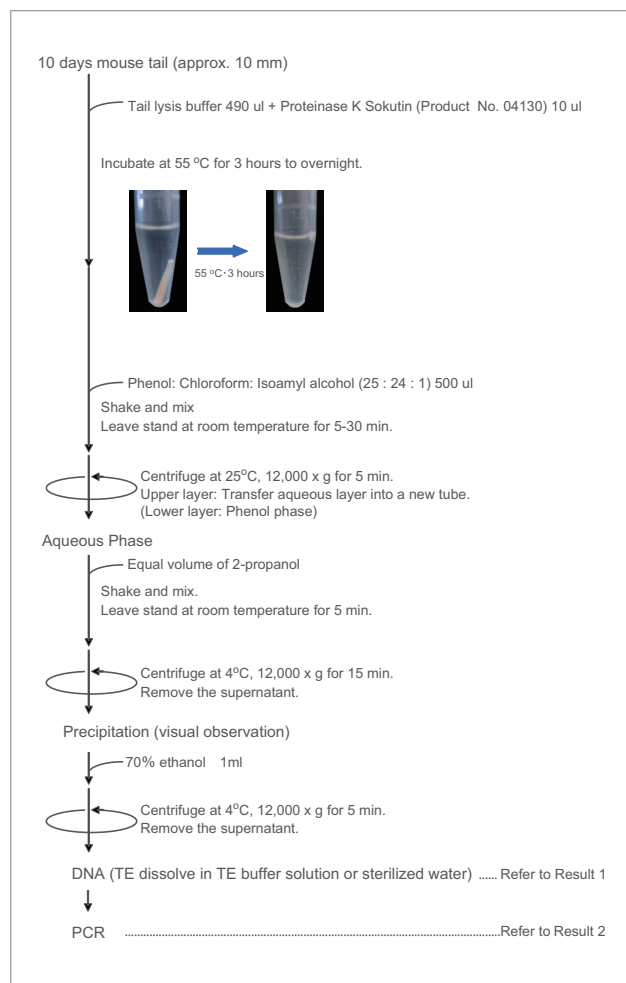
Tail Lysis Buffer

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

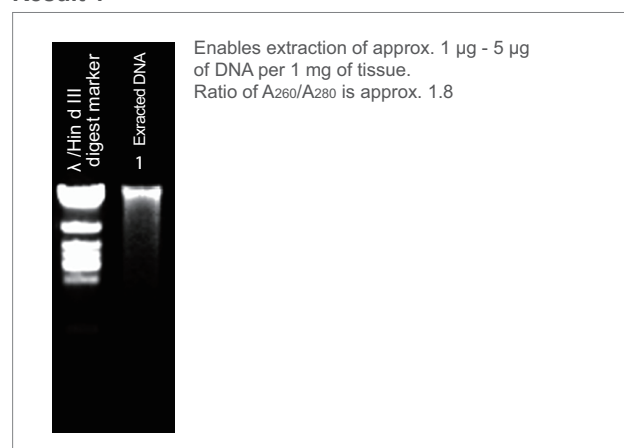
- » **Ready-to-use solution**
- » **DNase, RNase free**

Application 1: Genotyping of mouse tail

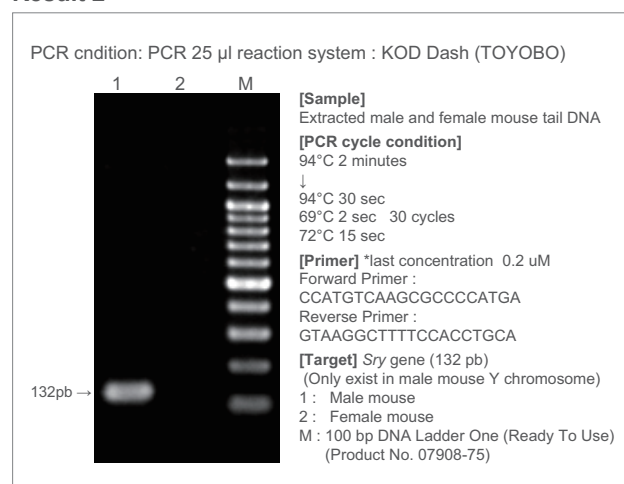
Procedure



Result 1



Result 2



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

Related Products

Product Name	Storage	Product No.	PKG Size
Proteinase K Solution (>700U/ml)	R	04130-06 04130-64	2 ml 10 ml
Phenol:Chloroform:Isoamyl Alcohol 25:24:1 Mixed, pH7.9	R	25970-14 25970-56	100 ml 400 ml
2-Propanol	RT	03065-35	500 ml
Ethanol (99.5)	RT	08948-25	500 ml

[Storage] RT = Room temperature, R = Refrigerator

Protease Inhibitor Cocktail (EDTA free)

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. This product does not interfere with metalloproteins since it is EDTA free.

- » **Wide range** **Contains inhibitors for a variety of serin and cysteine protease**
- » **Contain no EDTA** **Efficient for purification of metalloproteins and His tag gene exchanged proteins**
- » **Easy to use** **Dilute according to your need (100x stock concentration)**

Note:

1. The product does not contain phosphorylated proteins.
2. The product is phosphatase free.
3. The preservative in the product does not affect the enzyme activity of horseradish peroxidase (HRP).

Comparison of Activity for Thermolysin with EDTA Containing and EDTA free

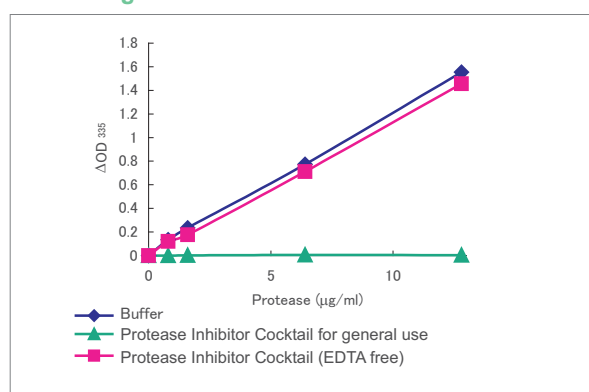


Figure 1. Thermolysin (from *Bacillus thermoproteolyticus*) is a metalloprotease. The compared protease inhibitors do not inhibit Thermolysin activity. The presence EDTA in the common product inhibits Thermolysin, while the EDTA free product does not cause damage.

Composition of Each Protease Inhibitor Cocktail

Inhibitors	#04080-11 for General Use	#03969-21 EDTA free	#25955-11 for Mammalian
4-(2-Aminoethyl) benzenesulfonyl fluoride hydrochloride (AEBSF)	✓	✓	✓
Aprotinin	✓	✓	✓
E-64	✓	✓	✓
Leupeptin hemisulfate mono-hydrate	✓	✓	✓
Disodium dihydrogen ethylenediaminetetraacetate dihydrate	✓		
Bestatin			✓
Pepstatin A			✓

The decrease in Thermolysin activity (in %) in the presence of protease inhibitor cocktails

	Thermolysin (μg/ml)			
	0.8	1.6	6.4	12.8
Protease Inhibitr Cocktail for General Use	100.0	99.6	99.2	99.7
Protease Inhibitr Cocktail (EDTA free)	9.7	8.2	8.0	6.3

Figure 2. The decrease in Thermolysin activity (in %) in the presence of protease inhibitor cocktails.

Reference

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2. Yang, JH. *et al. The Journal of Biological Chemistry* (2010)
3. Iyama, T. *et al. Nucl. Acids Res.* **38**(14), 4834-4843 (2010)
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5. Burnett, T. J. *et al. J. Bacteriol* **165**, 139-145 (1986)
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 (100x)	F	25955-11	5 x 1 ml

[Storage] F = Freezer

Phosphatase Inhibitor Cocktail (EDTA free)

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. This product does not interfere with metalloproteins since it is EDTA free.

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

Comparison Data

The product inhibits Ser/Thr phosphatase, Tyrosine Phosphatase, Acid, Phosphatase and Alkaline phosphatase.
The product preserves a small quantity of phosphorylated protein.

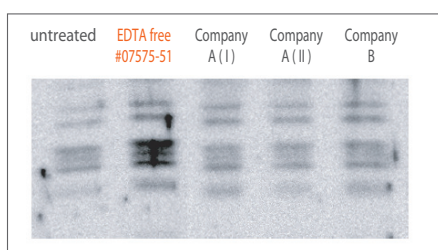


Figure 1. The detection of phosphorylated proteins in HeLa cells with p-Thr antibody

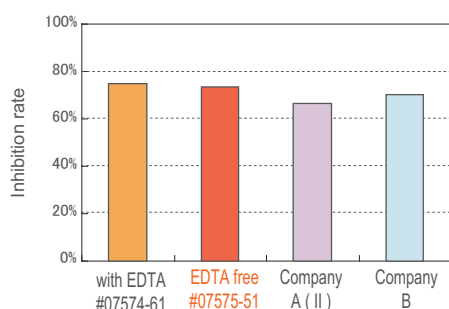


Figure 2. The inhibition effect of phosphatase assayed using fluorescence labeled p-Tyr peptide substrate

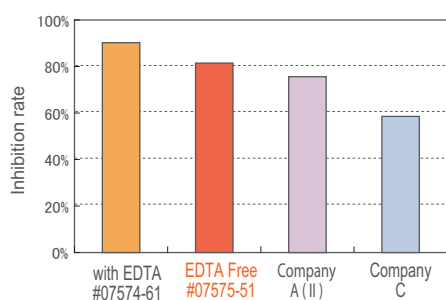


Figure 3. The inhibition effect of phosphatase assayed using p-nitrophenylphosphoric acid.

Composition of Each Phosphatase Inhibitor Cocktail

Inhibitors	#07575-51 EDTA free	#07574-61
Sodium orthovanadate (V)	✓	✓
Disodium molybdate (VI) dihydrate	✓	✓
Sodium (+)-tartrate dihydrate	✓	✓
Imidazole	✓	✓
Sodium fluoride	✓	✓
b-Glycerophosphoric acid disodium salt	✓	✓
tetra-Sodium ethylenediaminetetraacetate		✓

* 100 times concentrated aqueous solution

Reference

1. Yang, JH. *et al. The Journal of Biological Chemistry* (2010)
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

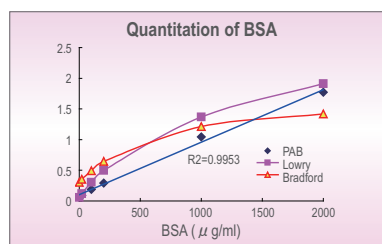
Product Name	Storage	Product No.	PKG Size
Protease Inhibitor Cocktail (EDTA free) for General Use (100x)	R	07575-51	1 ml
Protease Inhibitor Cocktail (100x)	R	07574-61	1 ml

[Storage] R = Refrigerator

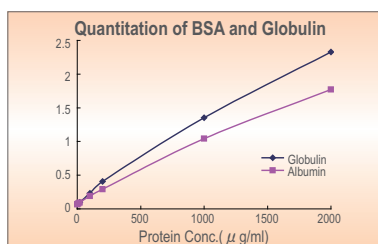
Protein Assay Bicinchoninate Kit

- » Lower effects for surfactants
- » Leads a protein assay with broad range and linearity (Figure 1)
- » Lower assay error for any proteins and background than (CBB) method (Figure 2)
- » Higher compatible concentrations than Lowry method (Table)
- » Easy to improve sensitivity by changing temperature and time (Figure 3)

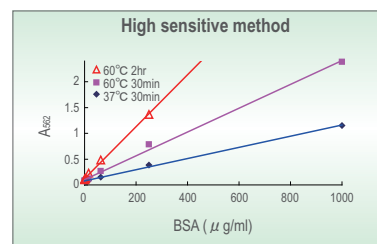
Basic method (37°C, 20-2000 µg/ml), Sensitive method (60°C, 5-250 µg/ml)



(Figure 1)



(Figure 2)



(Figure 3)

Table. Compatible Concentrations

Contamination of Substances	Compatible Concentrations	Contamination of Substances	Compatible Concentrations	Contamination of Substances	Compatible Concentrations	Contamination of Substances	Compatible Concentrations
NP-40	5 %	Sucrose	0.1 mg/ml	CHAPS	5 %	HCl	100 mM
SDS	5 %	Urea	3 M	Deoxycholic acid	5 %	NaOH	100 mM
Triton X-100	5 %	Guanidine	4 M	NaN ₃	0.2 %	HEPES	300 mM
Tween® 20	5 %	DTT	1 mM	NaCl	1 M	Na ₃ VO ₄	1 mM
EDTA	10 mM	2-ME	0.01 %	DMSO	10 %	Protease Inhibitor cocktail for General Use	1 X
Glucose	10 mM	TCEP	1 mM	Ethanol	10 %	Protease Inhibitor cocktail with Mammalian Cell and Tissue Extracts	1 X
Glycine	1 mM	Brij-35	5 %	Glycerol	10 %	Protease Inhibitor cocktail (EDTA free)	1 X

Principles

The Bicinchoninate method is a modified Lowry method that uses bicinchoninic acid. Sodium Bicinchoninate causes the reduced copper to form a purple complex. The absorbance at 562 nm of this complex leads a protein assay with broad range (20-2,000 µg/ml) and linearity.

Kit Contents

Assay for test tube: 250 assays/1 kit, microplate 2500 assays/1 kit

Solution A: Bicinchoninic acid solution 250 ml × 2 bottles

Solution B: Copper sulfate solution 10 ml

Ordering Information

Product Name	Storage	Product No.	PKG Size
Protein Assay Bicinchoninate Kit	RT	06385-00	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
Protein Assay CBB Solution (5x)	RT	29449-44	100 ml
		29449-15	500 ml

[Storage] RT = Room temperature, F = Freezer

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 casing solution. The gel can be used with the common sample buffer and running buffer. 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.



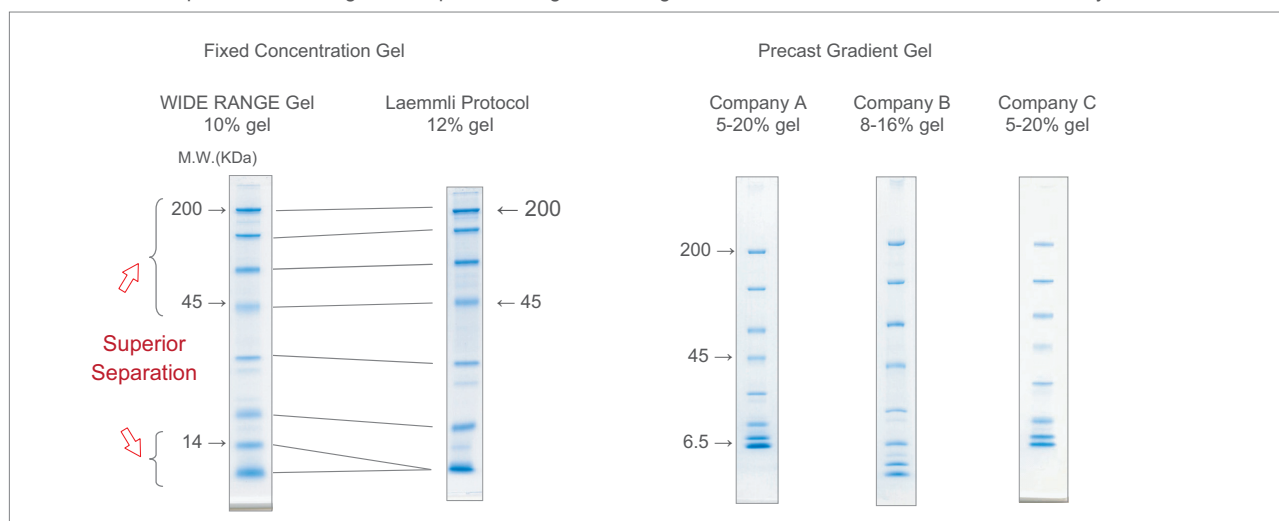
» Improved stability and strength

The increased tensile strength allows easy handling 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.

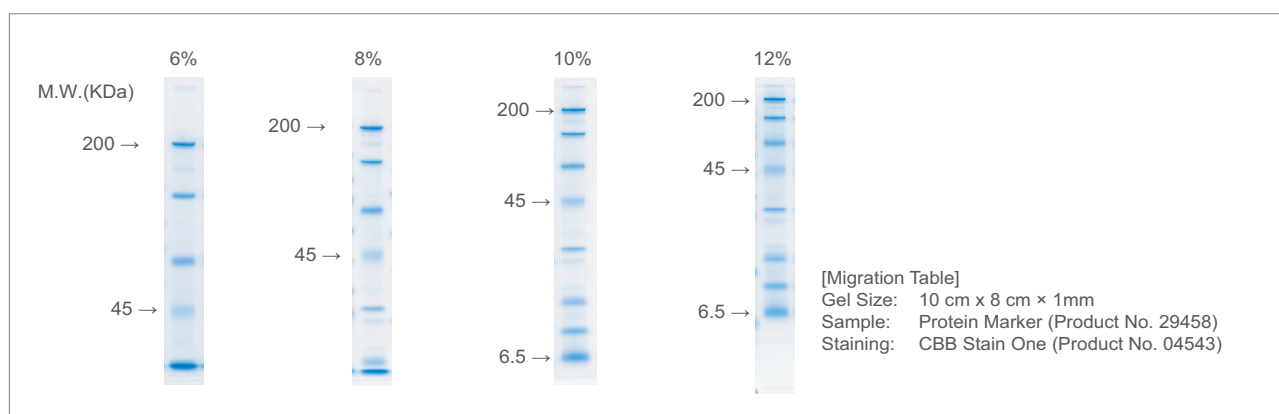


» A wide separation range

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



WIDE RANGE Gel Concentration



Ordering Information

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

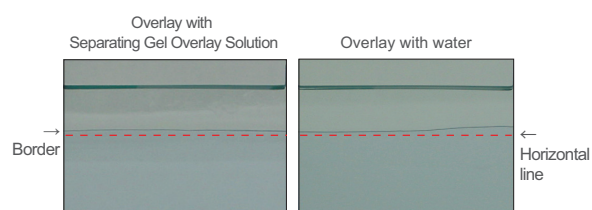
[Storage] R = Refrigerator

WIDE RANGE Gel Preparation Buffer (4x) for PAGE (continued)

Related Products

● Separating Gel Overlay Solution

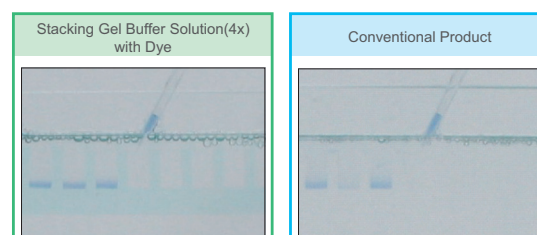
Put Separating Gel Overlay Solution in gel plate to make border flat.



Separating Gel Overlay Solution enables making a flat border as it quickly and equally spread. On the other hand, overlaying with water may make gel with different height on both sides as it becomes gel before it spreads.

● Stacking Gel Buffer Solution (4x) with Dye

» **Easy to confirm well location due to coloring stacking gel**
<Comparison with conventional product>



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

Polyacrylamide Gel 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
		33401-85	500 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 0.45um filter Components : 1.5M-Tris-HCl, 0.4 (w/v)%-SDS	RT	30651-05	500 ml
Separating Gel Overlay Solution for PAGE	RT	09316-94	20 ml
Stacking Gel Buffer Solution (4x) with Dye for SDS-PAGE pH6.8 Filtrated by 0.45um 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 0.45um filter Components : 0.5M-Tris-HCl, 0.4 (w/v)%-SDS	R	09267-44	100 ml
		32158-25	500 ml

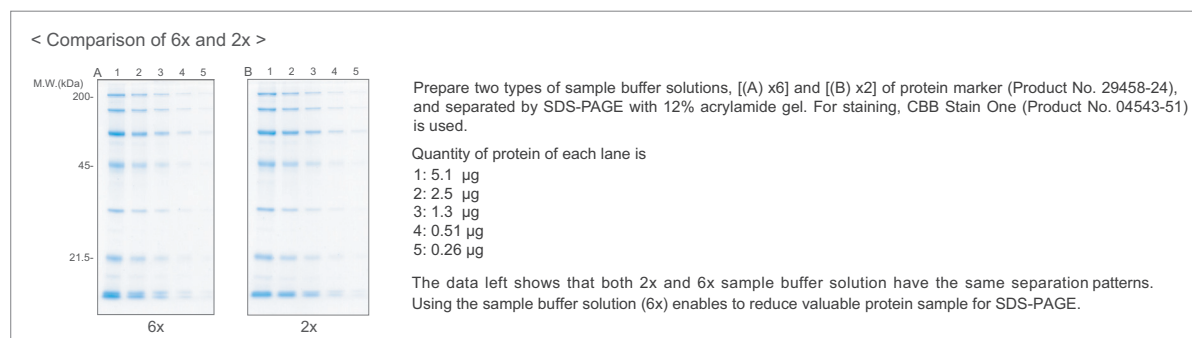
[Storage] RT = Room temperature, R = Refrigerator, F = Freezer

Electrophoresis 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: 0.25mol/l-Tris, 1.92mol/l-glycine, 10g/l-SDS	RT	30329-61	1 L
		30329-74	5 L
Running Buffer Solution (10x) for PAGE, Tris-Glycine, Filtrated by 0.45 µm filter Components: 0.25mol/l-Tris, 1.92mol/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	100 g
		35434-05	500 g
		35434-21	1 kg
		35434-34	10 x 1 kg
Sodium Lauryl Sulfate [Sodium Dodecyl Sulfate;SDS] Purity, 99%	RT	31607-52	25 g
		31607-94	100 g
		31607-65	500 g
Sodium Lauryl Sulfate granular [Sodium Dodecyl Sulfate;SDS] Purity, 99%, Solids (granular)	RT	02873-62	25 g
		02873-04	100 g
		02873-75	500 g
Sodium Lauryl Sulfate [Sodium Dodecyl Sulfate;SDS] Purity, 99.5%	RT	30400-72	25 g
		30400-85	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	100 g
		17141-95	500 g
Tricine {N-[Tris(hydroxymethyl)methyl]glycine}	RT	34713-62	25 g
		34713-04	100 g
Tricine {N-[Tris(hydroxymethyl)methyl]glycine} Nuclease and Protease tested	RT	02437-24	100 g

● Sample Buffer Solution for SDS-PAGE (6x)

- » Suitable for sample adjustment of low concentration proteins
- » Non-precipitation in the refrigerator
- » Two types of reagents (with and without reducing agent)



Sample Buffers

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

[Storage] RT = Room temperature, R = Refrigerator

WIDE RANGE Gel Preparation Buffer (4x) for PAGE (continued)

Sample Buffers

Product Name	Storage	Product No.	PKG Size
Reducing Agent			
2-Mercaptoethanol	RT	21418-42	25 g
		21418-84	100 g
		21418-55	500 g
Dithiothreitol	R	14112-36	100 mg
		14112-81	1 g
		14112-94	5 g
		14112-52	25 g
Tris (2-carboxyethyl) phosphine Hydrochloride (TCEP)	R	07277-61	1 g
Tracking Dyes			
Bromophenol Blue	RT	05808-61	1 g
		05808-32	25 g
Others			
Glycerol Nuclease and Protease tested	RT	17045-94	100 ml
		17045-65	500 ml

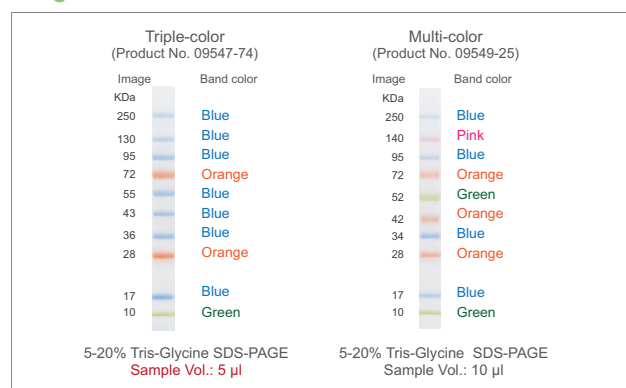
Molecular Weight Markers

In addition to an existing Protein Markers, NACALAI TESQUE launched two new products, Protein Ladder One and Chemi-Lumi One Markers Kit. Protein Ladder One contains 10 highly purified recombinant proteins to provide sharp bands and clear background. 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.

● Protein Ladder One

- » Sharp bands for accurate M.W. estimation
- » Available in triple-color and multi-color

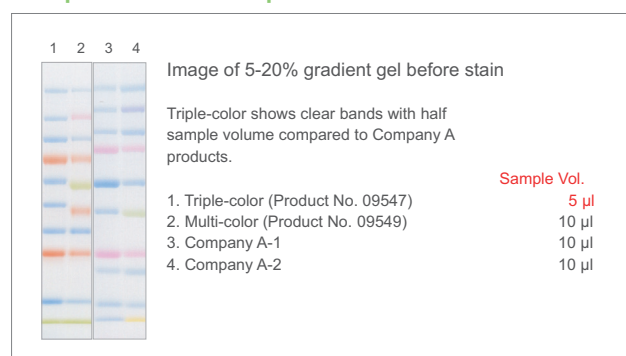
Images



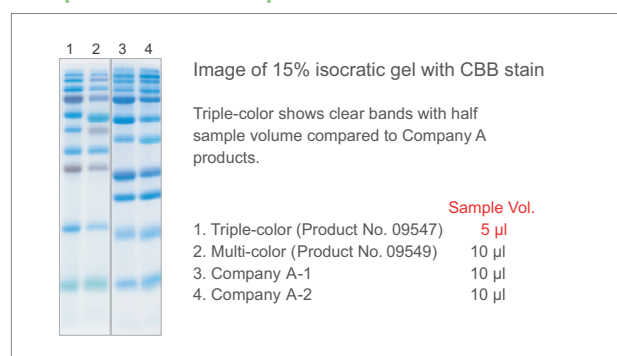
Compositions

33%(v/v) Glycerol
2%(w/v) SDS
10 mM DTT
1 mM EDTA
1 mM NaN₃
62.5 mM Tris-H₃PO₄
pH 7.5

Comparison with Competitors 1



Comparison with Competitors 2



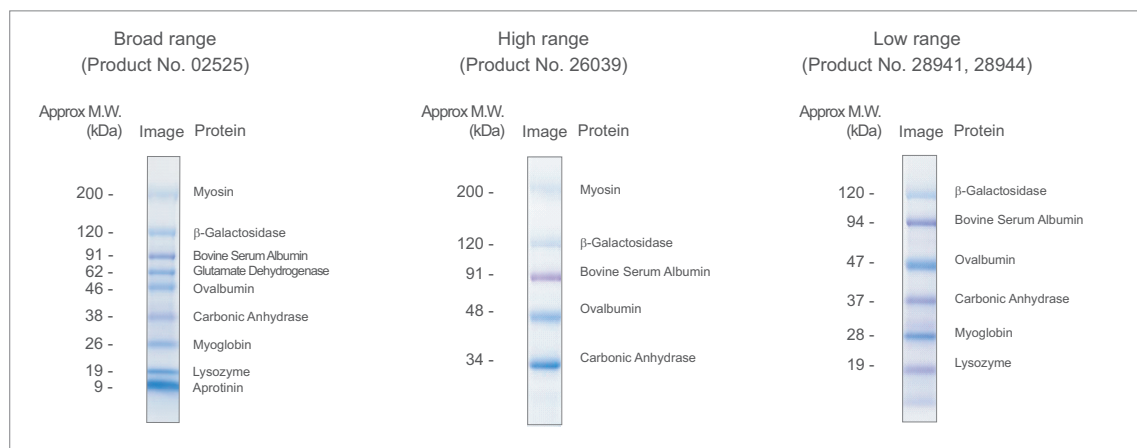
Ordering Information

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

Prestained Protein Markers

- » High concentration of prestained proteins
- » Visible during electrophoresis

Images



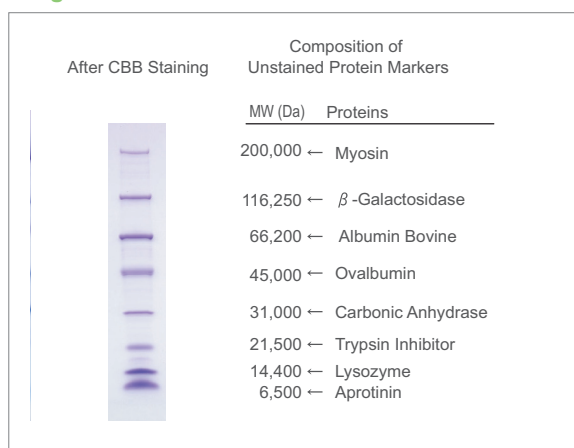
Ordering Information

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

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 \cdot 2Na
 3 mM NaN₃
 10 mM Tris-HCl (pH 7.0)

Ordering Information

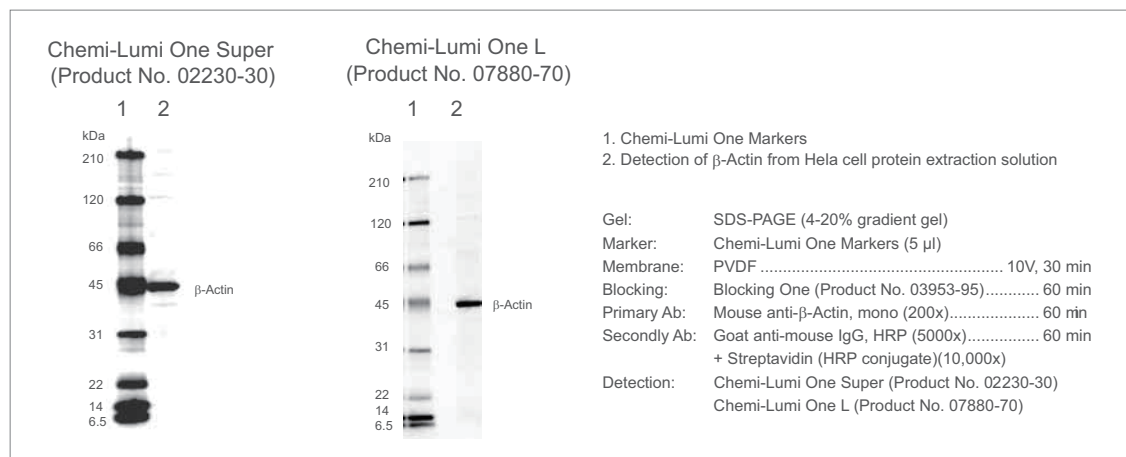
Product Name	Storage	Product No.	PKG Size
Protein Markers (M.W. 6,500 - 200,000)(10x) for SDS-PAGE	F	29458-24	200 μ l

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

Chemi-Lumi One Markers Kit

- » Contains 8 biotinylated proteins as molecular weight markers (M.W. 6,500 - 200,000 Da)
- » Includes HRP conjugated Streptavidin to detect biotinylated proteins

Western Blotting for Detecting of β -Actin



Components

Components	Proteins	M.W. (kDa)
1. Chemi-Lumi One Markers	Myosin	210
PKG Size: 50 μ l	β -Galactosidase	120
Solution of 8 biotinylated proteins	Bovine Serum Albumin	66
	Ovalbumin	45
	Carbonic Anhydrase	31
	Trypsin Inhibitor	22
	Lysozyme	14
	Aprotinin	6.5
2. Streptavidin (HRP conjugate)		
PKG Size: 250 μ l		
Horseradish peroxidase conjugated streptavidin solution		

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

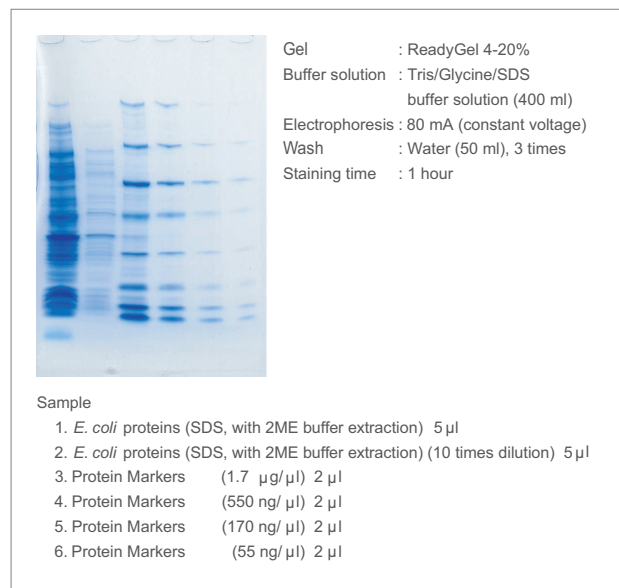
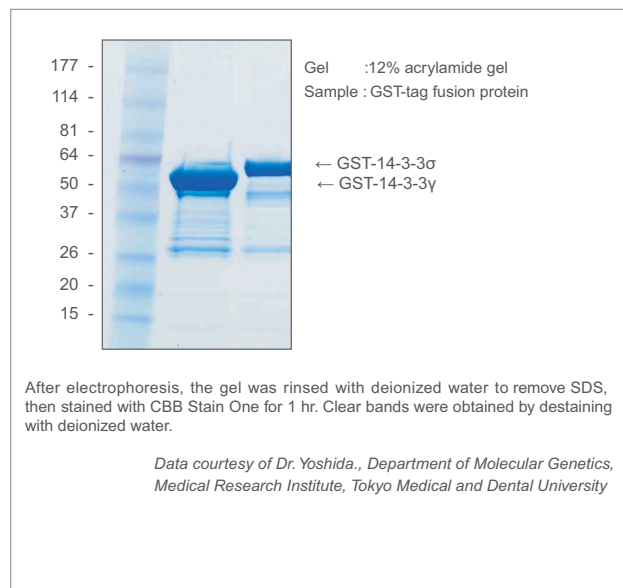
[Storage] F = Freezer

CBB Stain One (Ready To Use)

CBB Stain One is ready-to-use Coomassie Brilliant Blue G-250 staining solution for protein electrophoresis.

- | | |
|-----------------------|--|
| » Ready-to-use | One solution in one bottle |
| » Fast and convenient | Use only water for destaining |
| » Safe | No hazardous methanol and acetic acid |
| » Highly sensitive | Detects proteins at nanogram level |

Staining Image of Gel



Ordering Information

Product Name	Storage	Product No.	PKG Size
CBB Stain One (Ready To Use)	RT	04543-51	1 L
		04543-64	5 L

Related Products

Product Name	Storage	Product No.	PKG Size
Rapid Stain CBB Kit (Coomassie R-250)	RT	30035-14	1 set (for 2 L)
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

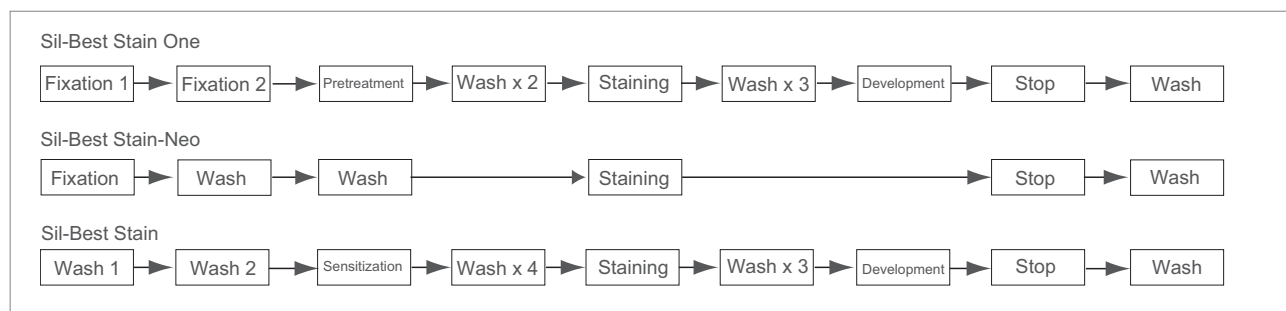
Silver Staining Kit

Silver 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.

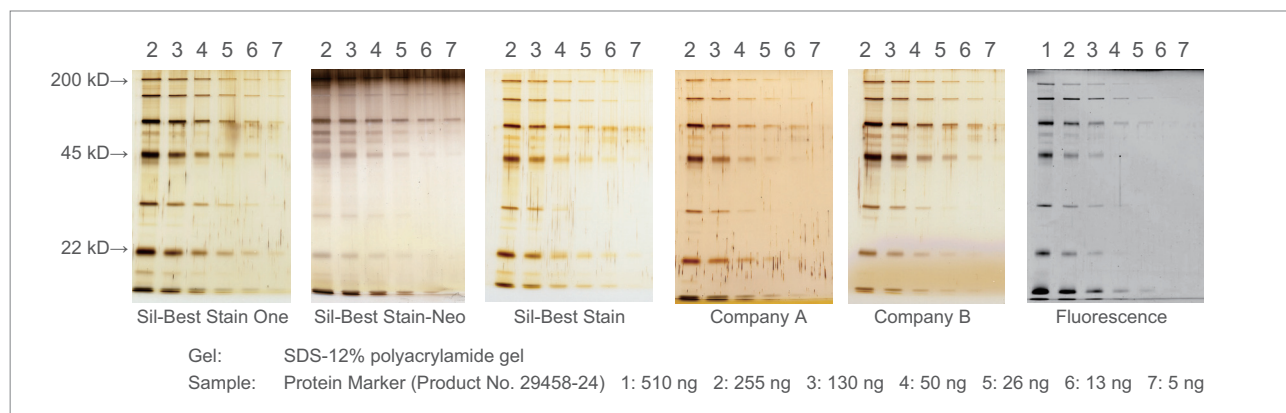
Comparison of Each Property

	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 Procudre



Comparison of Each Staining Image

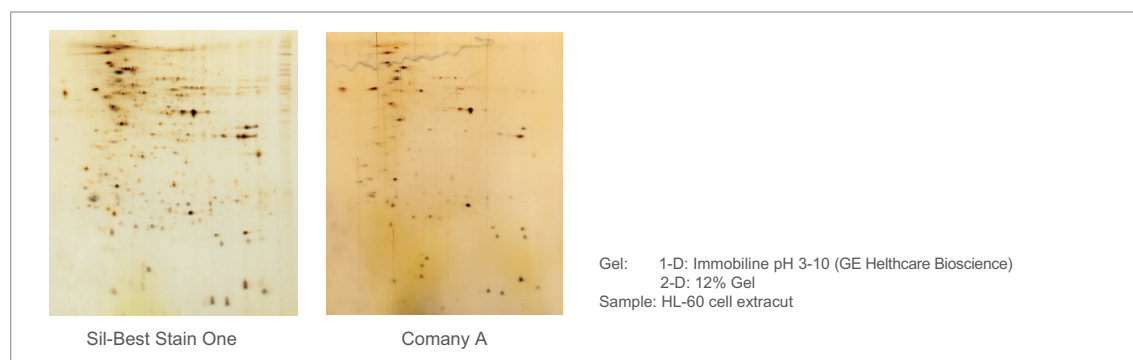


Sil-Best Stain One

Sil-Best Stain One is high sensitive method for detecting proteins in 2-D gel as its composition does not affect a result of mass spectrography after 2-D.

- » **High Sensitive and Low background**
- » **Not contained Glutaraldehyde**

Comparison of Staining Image with Sil-Best Stain One and Competitors'



Ordering Information

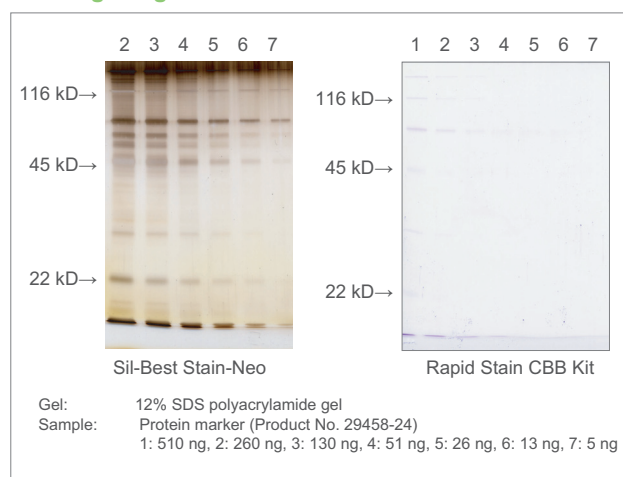
Product Name	Storage	Product No.	PKG Size
Sil-Best Stain One	R	06865-81	1 set

Sil-Best Stain-Neo

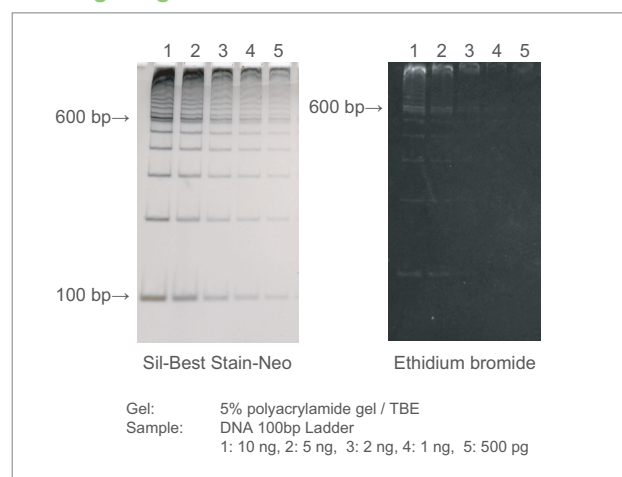
Sil-Best Stain-Neo is a high sensitive method for detecting nucleic acids and proteins in polyacrylamide gel. It is 50-100 fold more sensitive than CBB and ethidium bromide for proteins.

- » **Easy: Only 6 steps**
- » **Fast: Up to 1 hour**

Staining Image of Protein



Staining Image of Nucleic Acid



Ordering Information

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

Related Products

Product Name	Storage	Product No.	PKG Size
Dispotray (for minigel staining)	RT	06563-44	20 pieces

[Storage] RT = Room temperature, R = Refrigerator

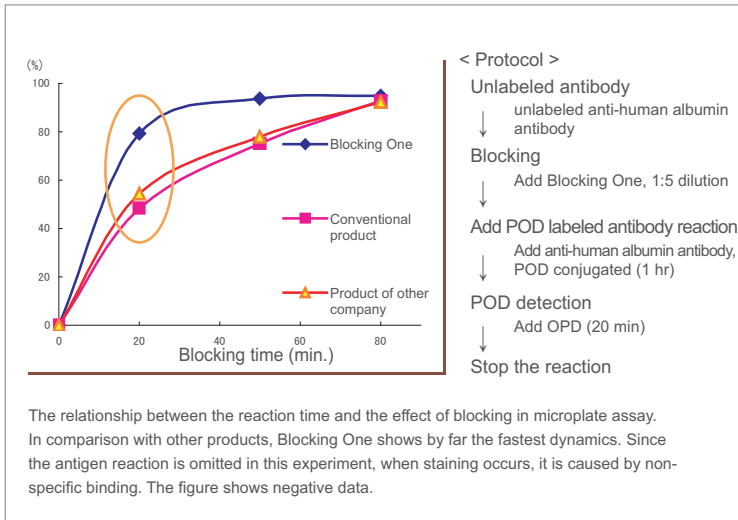
Blocking One Series (High performance blocking reagents)

● Blocking One

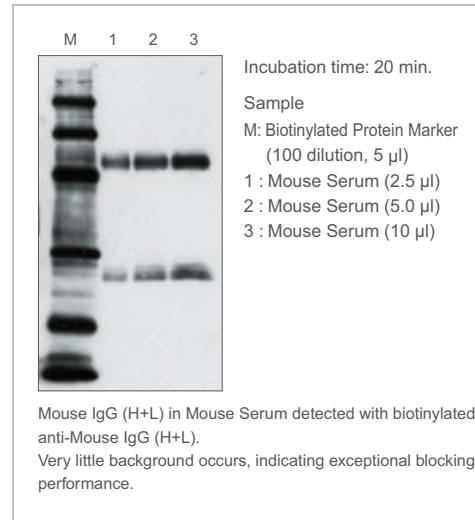
Blocking is indispensable in immunoassays in order to block non-specific binding reactions. Blocking One contains both high molecular weight compounds and bovine serum protein. Blocking One is superior to conventional blocking solutions. The preservative in Blocking One does not affect the enzyme activity of peroxidase (POD) or alkaline phosphatase (ALP). Only simple refrigerator storage is necessary, even after opening the bottle.

- » **Fast** **In many assays a reduction of incubation time for blocking can be realized**
- » **Easy-to-use** **Simple storage in refrigerator even after opening the bottle**

Comparison of Blocking Efficiency



Detection of Mouse IgG(H+L) by Western Blotting

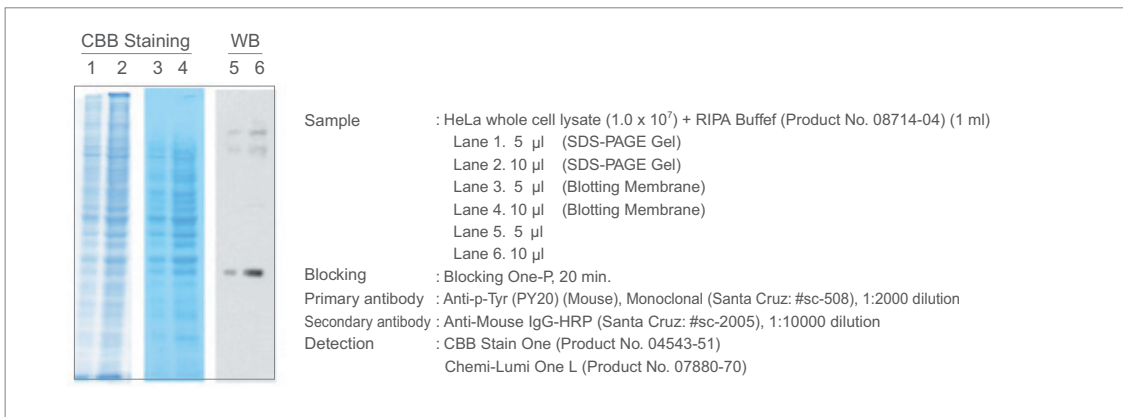


● Blocking One-P

In immunological detection methods, blocking agents containing phosphoproteins such as skim milk are not well suited for immunoassays with phospho-specific antibodies, and cause high background. 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 does not affect the enzyme activity of peroxidase (POD) or alkaline phosphatase (ALP). Only simple refrigerator storage is necessary, even after opening the bottle.

- » **Safe** **Does not contain phosphorylated proteins**
- » **Confirmed** **Endogeneous phosphatase free**
- » **High efficiency** **More effective than 1% BSA**

Western Blotting with Phospho-specific Antibody



Comparison

	Composition	Phospho-specific antibody applications	Blocking Efficacy
Blocking One-P	- High molecular weight compounds - BSA	+++	+++
Blocking One	- High molecular weight compounds - BSA - Casein	+	+++
Skim milk	- Casein	-	+
1% BSA	- BSA	++	+

Ordering Information

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

Related Products

Product Name	Storage	Product No.	PKG Size
Skim Milk	RT	31149-75	500 g
Albumin, Bovine, EIA/RIA Grade, Globulin-free	R	01281-97	10 g
		01281-84	50 g
		01281-26	100 g
Casein from Milk	RT	07319-95	500 g

[Storage] RT = Room temperature, R = Refrigerator

Chemiluminescent Western Blotting Substrates

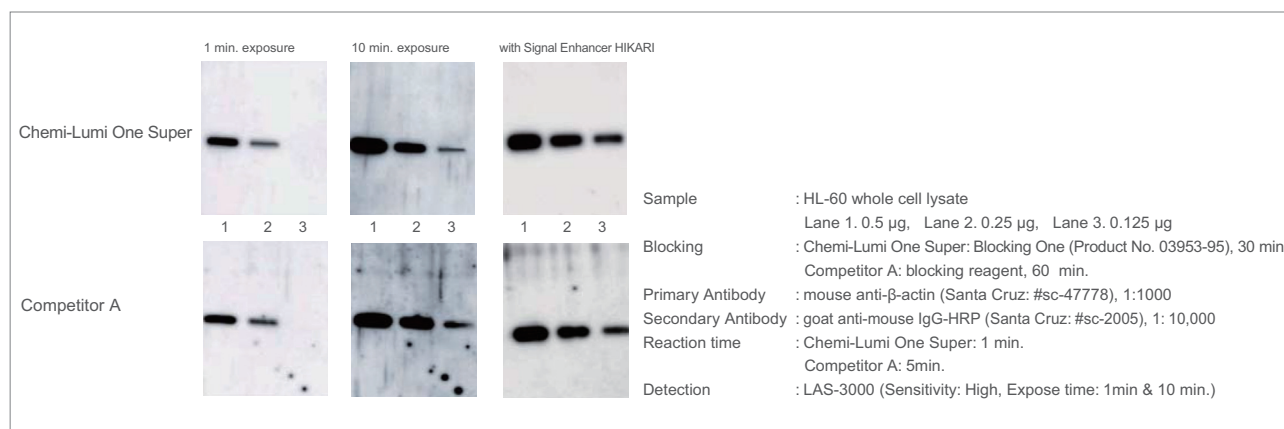
Chemiluminescence is the western blotting detection method of choice in most protein laboratories as it provides the greatest sensitivity and convenience for detection with film or digital imaging equipment. Chemiluminescent substrates for horseradish peroxidase (HRP) are two-component systems consisting of a stable peroxide solution and an enhanced luminol solution. When incubated with a blot on which HRP-conjugated antibodies are bound, a chemical reaction produces light that can be detected by film or sensitive camera. Two types of chemiluminescent substrates for western blotting detection with horseradish peroxidase enzyme (HRP) are available now.

● Chemi-Lumi One Super

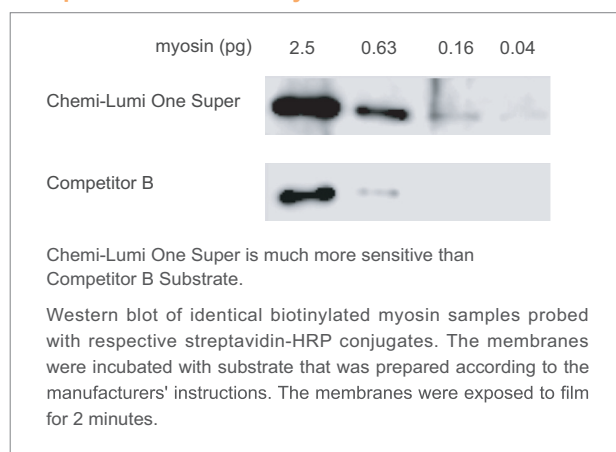
- » **High sensitivity** **Detects proteins at Mid-femtogram level with low background**
- » **Fast** **Rapid substrate processing of blot**

Applications

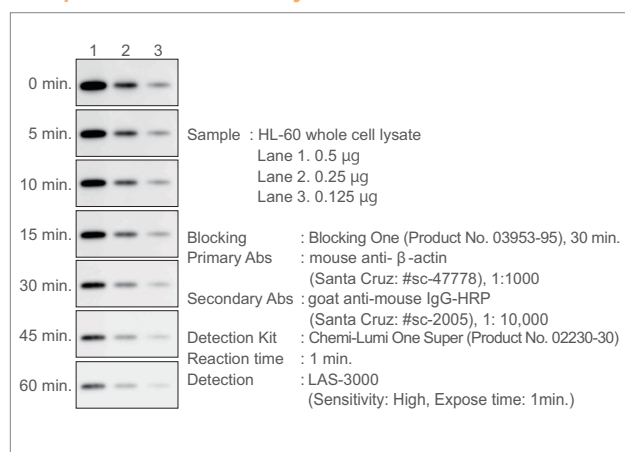
Comparison of sensitivity and background using Chemi-Lumi One Super and competitor substrate. To increase sensitivity, the prolongation of exposure time and the application of Signal Enhancer HIKARI treated. The competitor substrate shows high background. The combine Chemi-Lumi One Super and Blocking One (as blocking reagent) or Signal Enhancer HIKARI show lower background than competitor substrate.



Comparison of Sensitivity



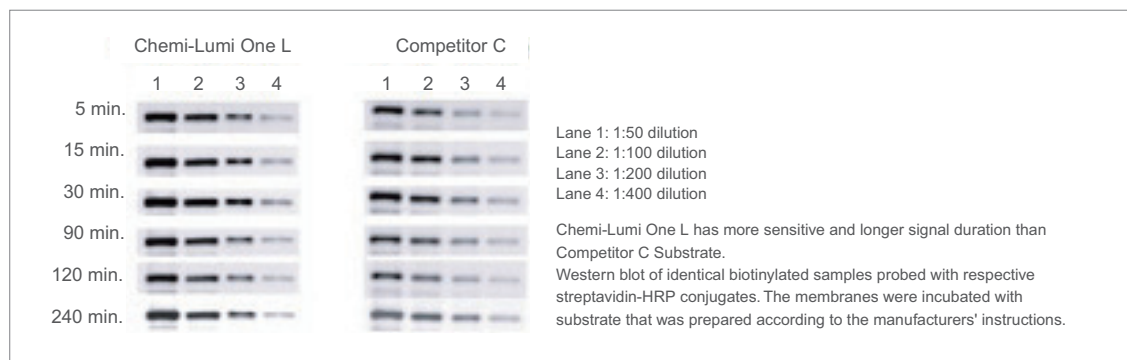
Comparison of Sensitivity and Duration



● Chemi-Lumi One L

- » **Longer light emission** **Strong light emission for more than 120 minutes**
- » **Highly sensitive** **Intense signal with low background**
- » **Fast** **Rapid substrate processing of blot**

Comparison of Sensitivity and Duration



Ordering Information

Product Name	Storage	Product No.	PKG Size
Chemi-Lumi One Super (for 1,000 cm ² of blotting membrane)	R	02230-30	1 kit
Chemi-Lumi One L (for 4,000 cm ² of blotting membrane)	R	07880-70	1 kit

Related Products

Product Name	Storage	Product No.	PKG Size
Peroxidase Stain DAB Kit (Brown Stain)	R	25985-50	1 kit
Metal Enhancer for DAB Stain, Nuclease tested	RT	07388-24	100 ml
Streptavidin Biotin Complex Peroxidase Kit	R	30462-30	1 kit
BCIP-NBT Solution Kit for Alkaline Phosphatase Stain, Nuclease tested	F	03937-60	1 kit

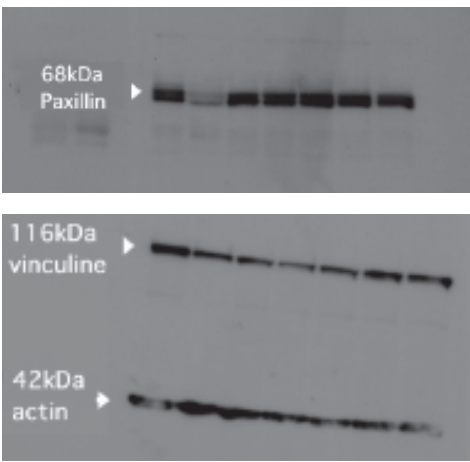
[Storage] RT = Room temperature, R = Refrigerator, F = Freezer

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



68kDa
Paxillin

116kDa
vinculin

42kDa
actin

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

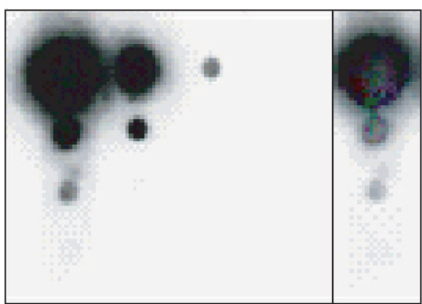
Wash : t-Tris Buffered Saline

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



a. b. c. d. e.

← 5000 ng

← 500 ng

← 50 ng

← 5 ng

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

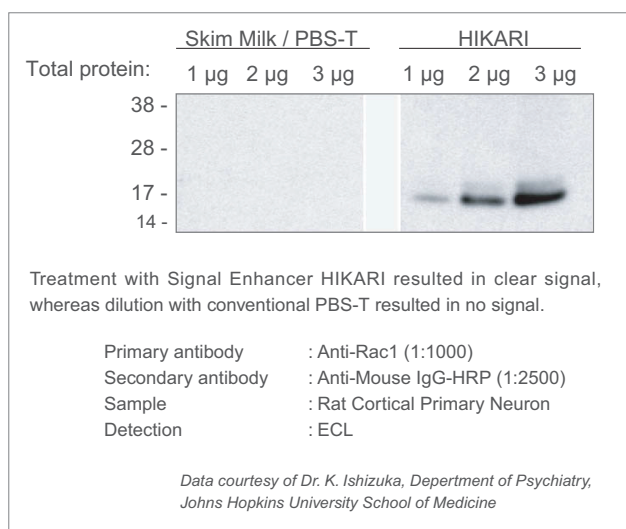
[Storage] R = Refrigerator

Signal Enhancer HIKARI for Western blotting and ELISA

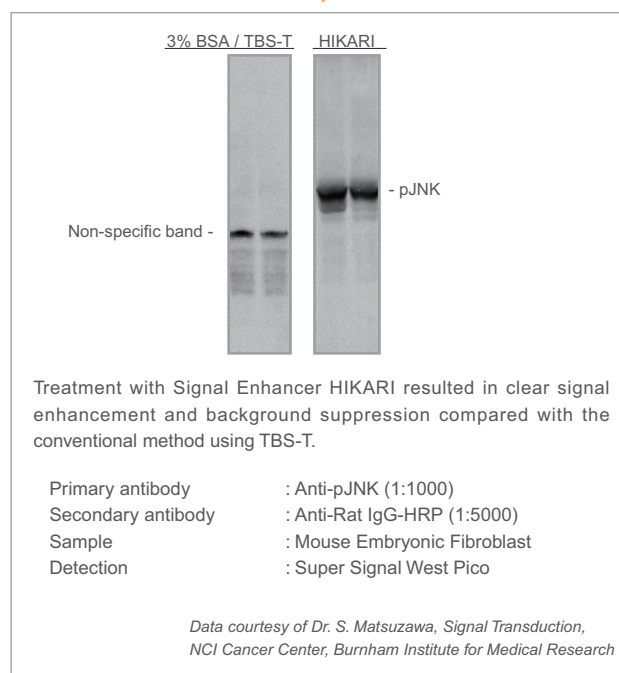
Dilute your antibodies with Signal Enhancer HIKARI instead of conventional diluents such as PBS or TBS before performing your next western blotting detection protocol and witness a remarkable increase in the ability to detect the protein of interest and to eliminate undesired background. Signal Enhancer 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** **Yields several 10-fold increase in signal intensity**
- » **Removes background** **Improves the specificity of your antibodies**
- » **Works with any substrate** **Enhances both chemiluminescence and colorimetric detection**
- » **Works with any membrane** **Enhances signal from nitrocellulose and PVDF membrane**
- » **Ready-to-use reagent** **Just dilutes your antibodies with Signal Enhancer HIKARI**

Detection Enhancement of Rac1



Detection Enhancement of pJNK



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

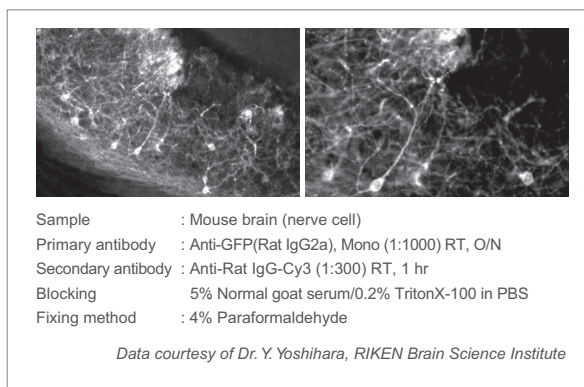
Epitope Tag Antibody

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.

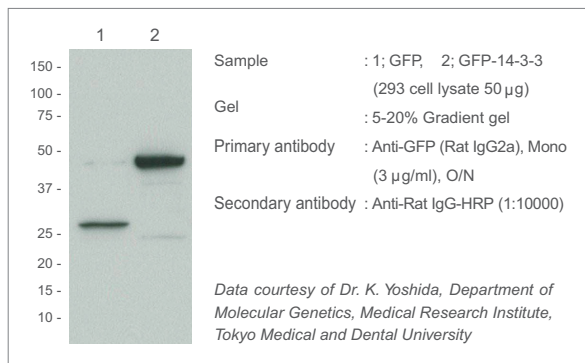
● Anti-GFP (Rat IgG2a), Mono (GF090R)

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

Immunohistochemistry



Western Blotting



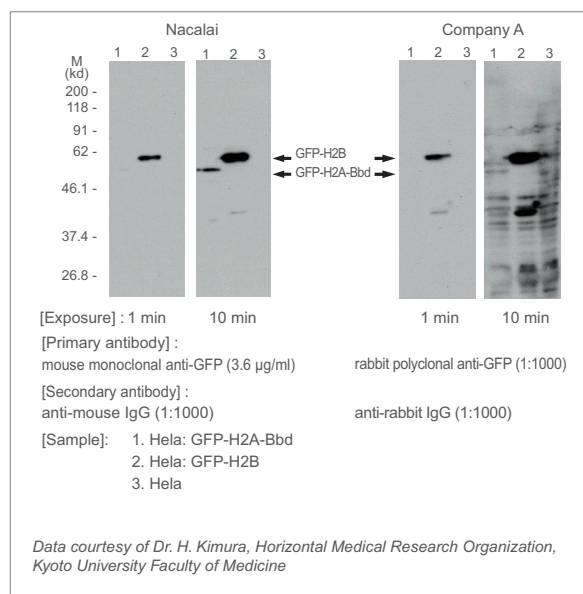
Reference

1. Nakamura, M. *et al. Molecular Vision* **16**, 425-437 (2010)
2. Nishide, K. *et al. PLoS ONE* **4**(8), e6869 (2009)
3. Nagao, M. *et al. The Journal of Cell Biology* **183**(7), 1243-1257 (2008)
4. Ono, K. *et al. Development Biology* **320**(2), 356-468 (2008)
5. Nakashiba T. *et al. Science* **319**(5867), 1260-1264 (2008)
6. Batista-Brito R *et al. The Journal of Neuroscience* **28**(15), 3966-3975 (2008)
7. Esumi S. *et al. Neuroscience Research* **60**(4), 439-451 (2008)
8. Fogarty M. *et al. The Journal of Neuroscience* **27**(41), 10935-10946 (2007)
9. Sasamura T. *et al. Development* **134**, 1347-1356 (2007)
10. Sato Y. *et al. The Journal of Neuroscience* **27**(7), 1606-1615 (2007)
11. Yamada M. *et al. Stem Cells* **25**(3), 562-570 (2007)
12. Togashi H. *et al. The Journal of Cell Biology* **174**, 141-151 (2006)
13. Ogata M. *et al. Molecular and Cell Biology* **26**(24), 9220-9231 (2006)
14. Sato Y. *et al. The Journal of Neuroscience* **25**(20), 4889-4897 (2005)

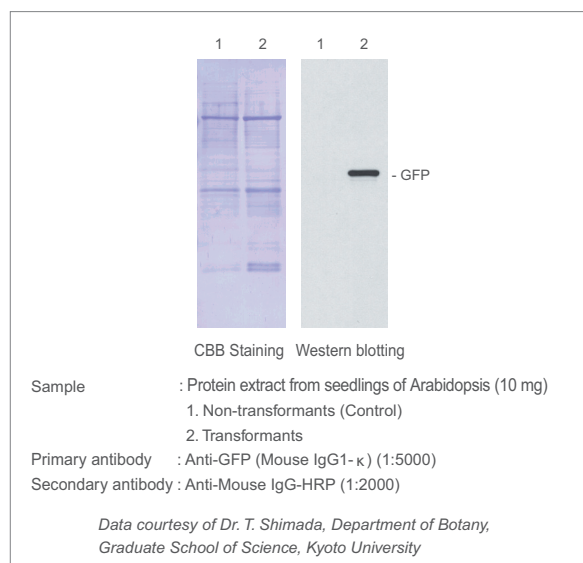
● Anti-GFP (Mouse IgG1-k), Mono (GF200)

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



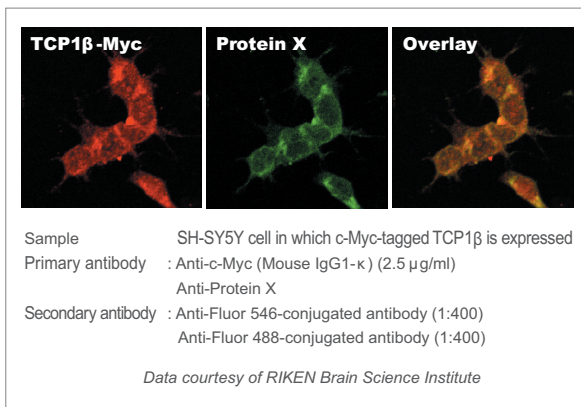
Western Blotting



● 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
	: Immunocytochemistry 1:400-1:1000
	: ELISA 1:2000-1:20000

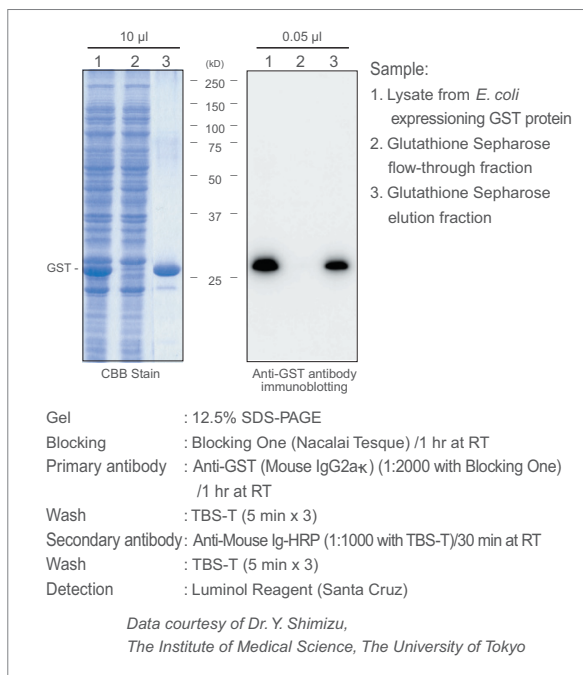
Immunocytochemistry



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

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

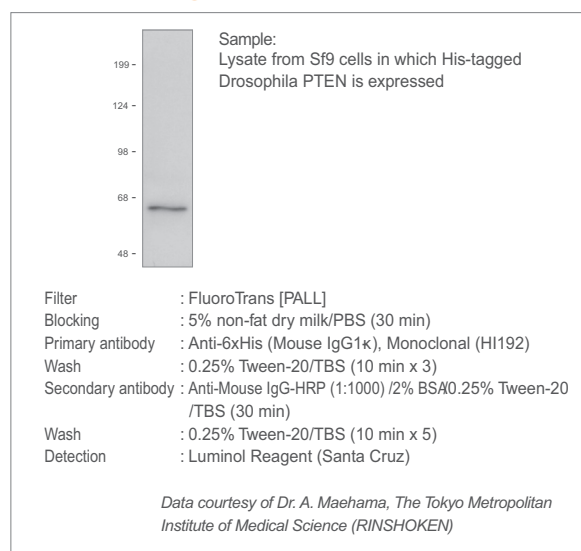
Western Blotting



● 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

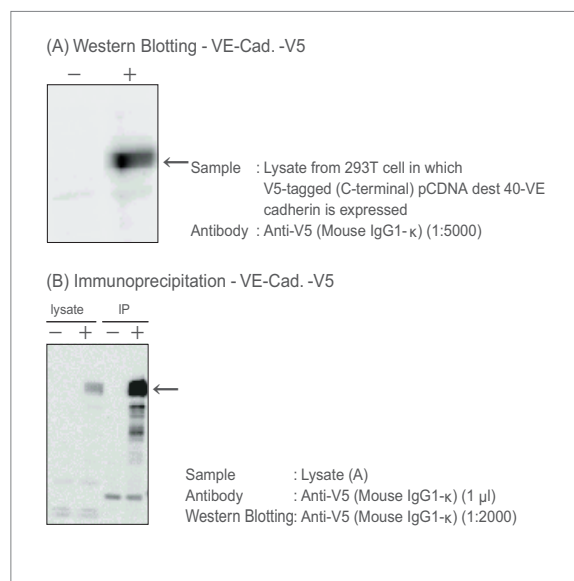
Western Blotting



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

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

Western Blotting, Immunoprecipitation

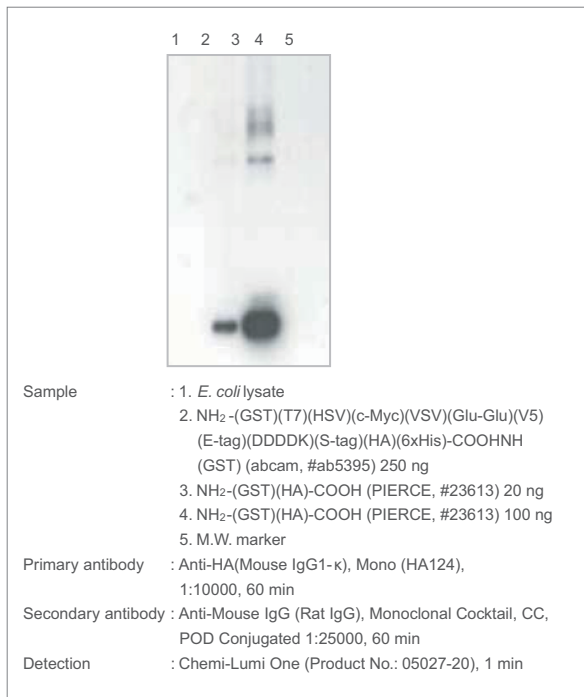


Epitope Tag Antibody (continued)

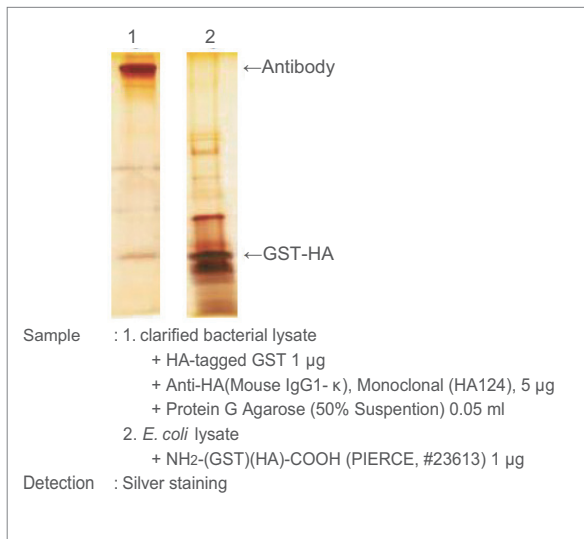
● Anti-HA (Mouse IgG1-κ), Mono (HA124)

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

Western Blotting



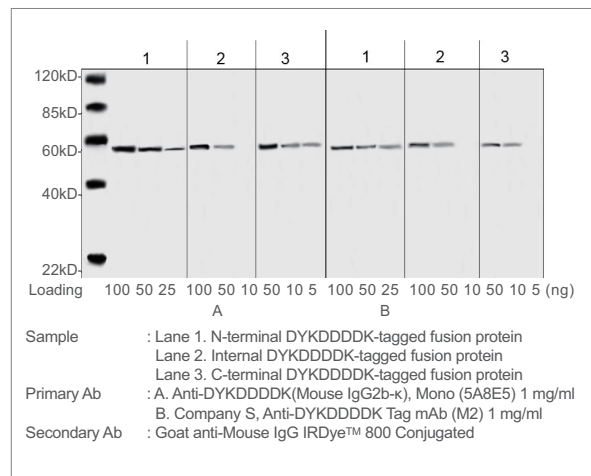
Western Blotting



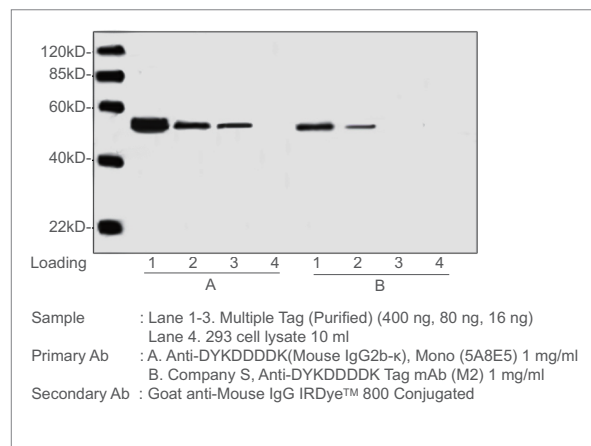
● Anti-DYKDDDDK(Mouse IgG2b-κ), Mono

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



Western Blotting



Ordering Information

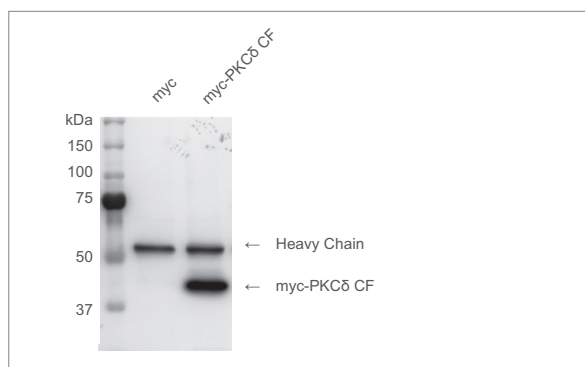
Product Name	Application	Storage	Product No.	PKG Size
Anti-c-Myc (Mouse IgG1-k), Monoclonal (MC045)	WB, IP, ICC, ELISA	R	04362-76	50 µg
			04362-34	200 µg
Anti-GFP (Mouse IgG1-k), Monoclonal (GF200)	WB, ELISA	R	04363-66	50 µg
			04363-24	200 µg
Anti-GFP (Rat IgG2a), Monoclonal (GF090R)	WB, IHC ELISA	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-k), Mono	WB, IP IF, ELISA	F	NU01102	200 µg

[Storage] R = Refrigerator, F = Freezer

Labeled Epitope Tag Antibody

● Anti-c-Myc, Agarose Conjugate

Western Blotting



Clone : MC045
 Isotype : IgG1a-κ (mouse)
 Size : 0.5 mg
 Antibody Protein : ca. 2 mg antibody / ml agarose
 Product form : 1:1 suspension in Dulbecco's PBS(-)

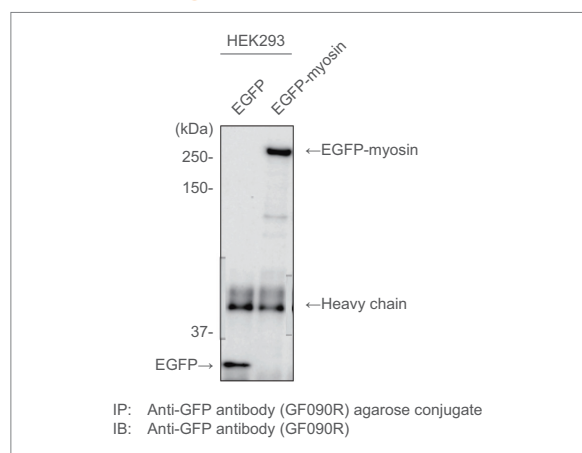
Cells transfected plasmid DNA including c-Myc Tag are lysed, and cell lysate was proceeded to immunoprecipitation with c-Myc-Agarose antibody. The figure above shows the result of wesetrn blotting analysis after immunoprecipitation.

Antibody
 Immunoprecipitate: Anti-c-Myc, Agarose conjugate (clone: MC045) (1:500)
 Western blotting: Anti-c-Myc (clone: MC045)

Data courtesy of a customer

● Anti-GFP (Rat IgG2a), Mono (GF090R), CC, Agarose Conjugate

Western Blotting



IP: Anti-GFP antibody (GF090R) agarose conjugate
 IB: Anti-GFP antibody (GF090R)

Samples: HEK-293 cell lysate expressing either EGFP or EGFP-Myosin (1 ml each)

Immunoprecipitation was performed with Anti-GFP agarose conjugate (20 ul) at 4°C for 2 hours.

Data courtesy of Dr. A. Kakizuka, Laboratory of Functional Biology, Graduate School of Biostudies, Kyoto University

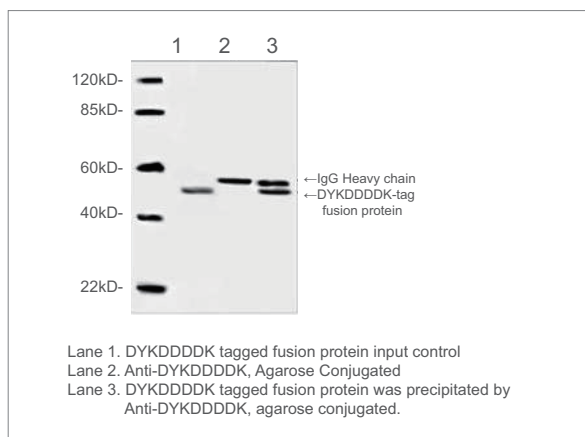
Referenes

Kumeta, M *et al.* Molecular mechanisms underlying nucleocytoplasmic shuttling of actinin-4. *J Cell Sci.* **123**(Pt 7):1020-30 (2010)

Labeled Epitope Tag Antibody (continued)

● Anti-DYKDDDDK (Mouse), Monoclonal Agarose Conjugate

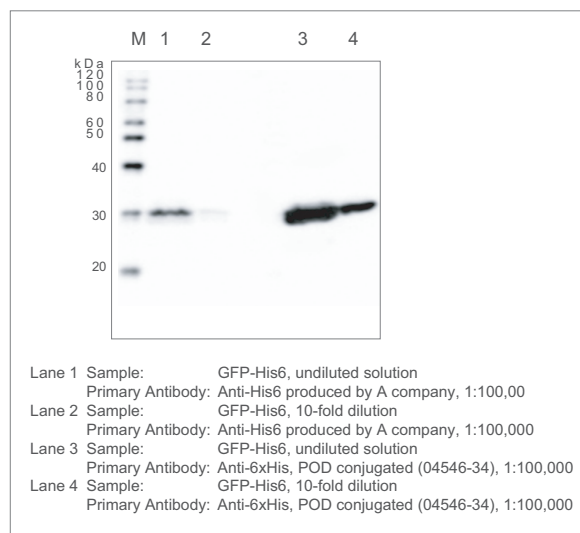
Western Blotting



Clone : 6H8E4
Degree of substitution : Approx. 8.5 mg Anti-DYKDDDDK mAb/ml settled resin
Capacity : > 1 mg/ml settled resin
Product form : 1x PBS containing 50% glycerol

● Anti-6xHis, POD Conjugated

Western Blotting



Clone : HI192
Isotype : IgG1a-k (mouse)
Product form : Liquid
Immunogen : 6xHis synthetic peptide [HHHHHH]
: conjugated with KLH
Application : Western blot ting 1:1000 - 1:2000
: ELISA 1:30000 - 1:60000

Each concentration of GFP-His6 protein synthesized by in vitro translation were applied 2.5 µl to gel.

● Anti-c-Myc, POD Conjugated

Clone : MC045
Isotype : IgG1a-k (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-V5, POD Conjugated

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

● Anti-GST, POD Conjugated

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

● Anti-GFP, POD Conjugated

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 - 1:4000

Ordering Information

Product Name	Application	Storage	Product No.	PKG Size
Anti-c-Myc (Mouse IgG1-k), 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-k), Monoclonal (MC045), AS, POD Conjugated	WB, ELISA	R	04554-24	50 µg
Anti-GST (Mouse IgG2a-k), Monoclonal (GS019), AS, POD Conjugated	WB, ELISA	R	04559-74	50 µg
Anti-6xHis (Mouse IgG1-k), Monoclonal (HI192), AS, POD Conjugated	WB, ELISA	R	04546-34	50 µg
Anti-V5 (Mouse IgG1-k), Monoclonal (V5005), AS, POD Conjugated	WB, ELISA	R	04578-24	50 µg
Anti-GFP (Mouse IgG1-k), Monoclonal (GF200), AS, POD Conjugated	WB, ELISA	R	05178-34	50 µg

[Storage] R = Refrigerator, F = Freezer

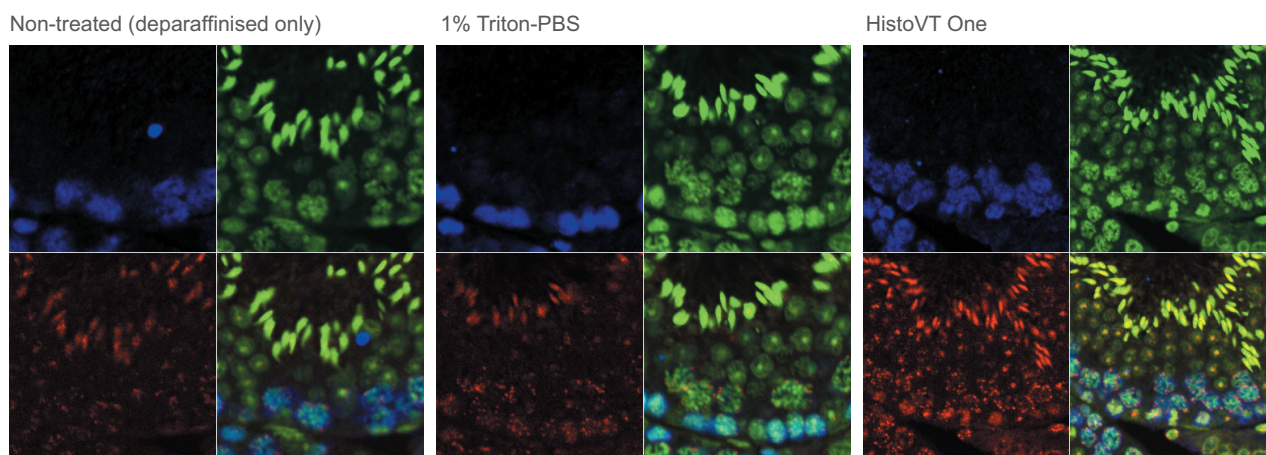
HistoVT One (10x, pH 7.0)

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
- » Applicable to frozen or paraffin-embedded tissue section
- » High reproducibility

Application 1

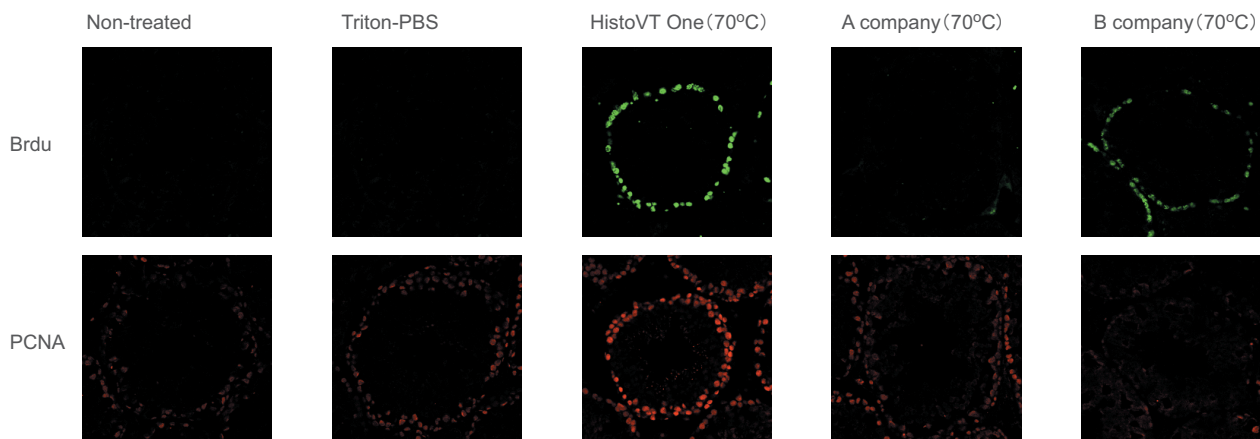
Formalin-fixed, paraffine-embedded tissue sections



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

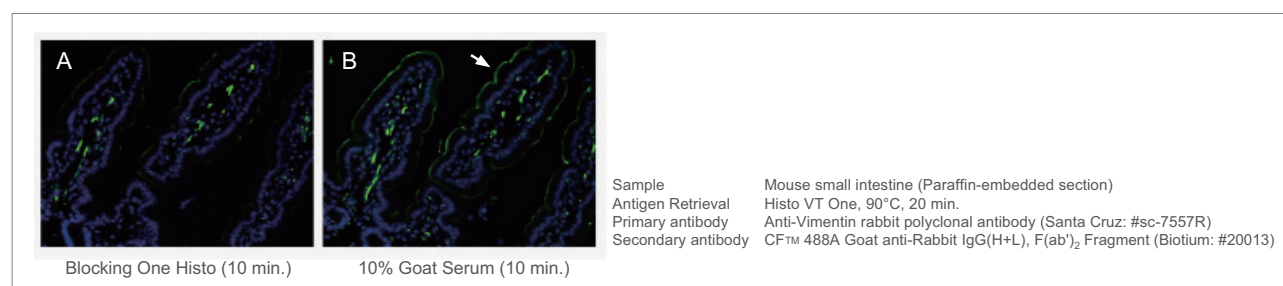
Blocking One Histo

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 (Product No. 03953-95, refer to page 37 for details).

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

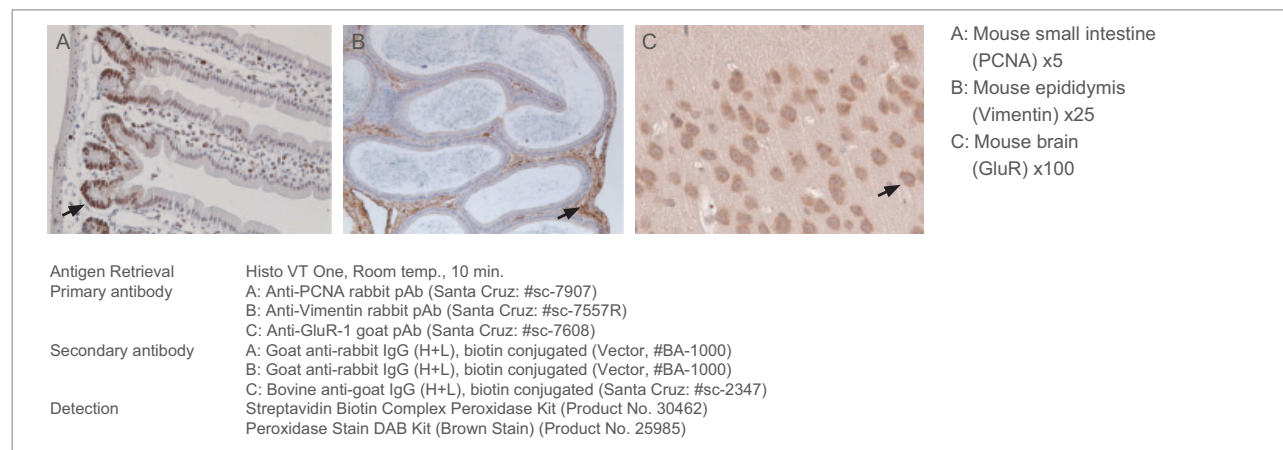


Comparison of blocking efficiency with 10% Goat Serum (Immunofluorescence)



In both panels, mouse small intestine tissue section was stained with secondary antibody conjugated with CF™ 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



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.

Protocol

Blocking non-specific binding in IHC

Cover a tissue section on a slide glass with enough drops of this product. Incubate tissue section at room temperature for 5-10 minutes. Tap off blocking solution and wash slide glass with tPBS or tTBS for 5 minutes before application of primary antibody.

Dilution antibody

Add predetermined quantity of antibody into the diluted blocking buffer. Shake gently not to generate foam. Use it immediately. Do not store diluted antibody solution because activity of enzyme labeled antibody after dilution may decrease over time.

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.

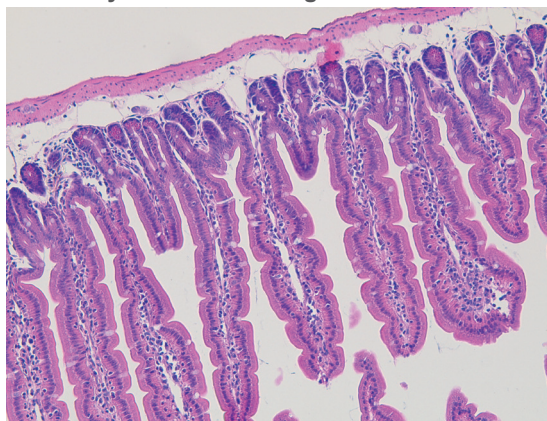
If a methanol free formalin solution is required, the substance can be removed by dissolving paraformaldehyde into the prepared solution. However, care is needed when this method is used because paraformaldehyde is extremely toxic and can cause injury if scattered. To deal with this hazard, additional 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**
- » **Refrigerable**

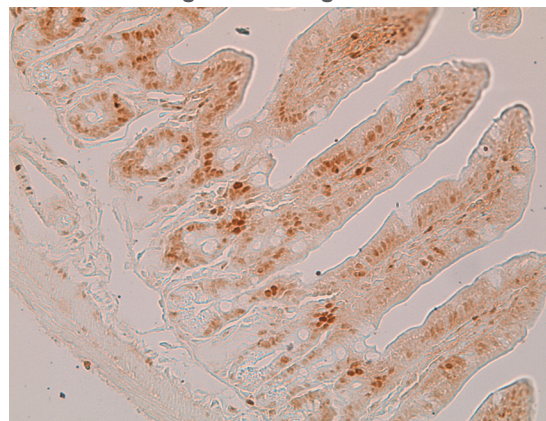
Usage examples

Hematoxylin-eosin staining



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

Immunohistological staining



Sample: Mouse small intestine
 Fixation method: Immersion fixation with this product (overnight at 4°C)
 Deparaffinization: Limonene and ethanol
 Primary antibody: Anti-PCNA (FL-261) (rabbit) (Santa Cruz Biotechnology Inc #sc-7907)
 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

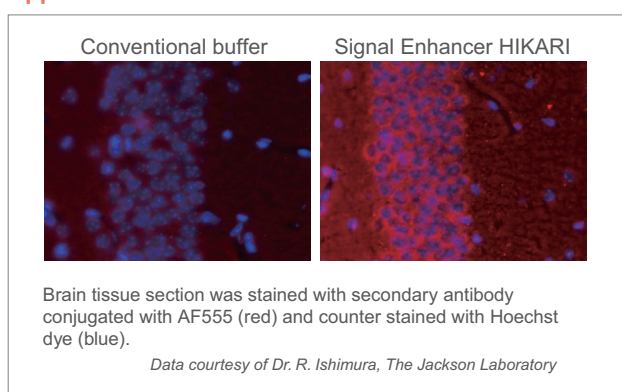
Signal Enhancer HIKARI for Immunostain

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** **Yields several fold increase in signal intensity**
- » **Reduces background** **Improves the specificity of your antibodies**
- » **Ready-to-use reagent** **Just dilutes your antibodies with Signal Enhancer HIKARI for Immunostain**
- » **Works with any system** **Applicable to colorimetric, chemiluminescent and fluorescent detection**

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

Applications

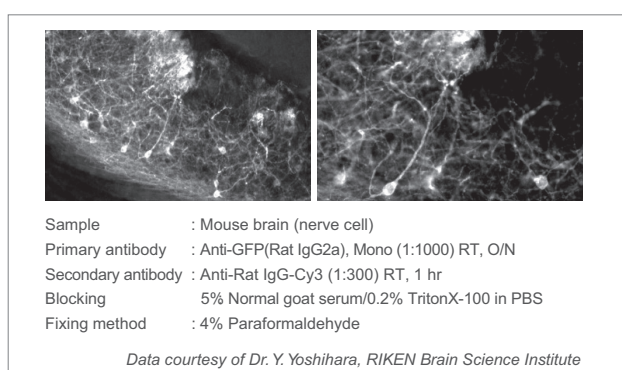


Ordering Information

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**



References for Immunostaining

1. Takeshi Sasamura *et al. Development* **134**, 1347-1356 (2007)
2. Takashi Inoue *et al. The Journal of Neuroscience*, **27**(20), 5461-5473 (2007)
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, (2007)
5. Keith N. Brown, *et al. Science*, **334**, 480 (2011)
6. Anna N. Rubin *et al. The Journal of Neuroscience*, **30**(36), 12050-12062 (2010)
7. Shinsuke Nakao *et al. J Cell Biol.*, **182**(2), 395-410 (2008)
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)
10. Takuya Sato *et al. Nature Communications*, **2** (472)
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 Sensitive Peroxidase DAB Stain

• Peroxidase Stain DAB Kit and Enhancer

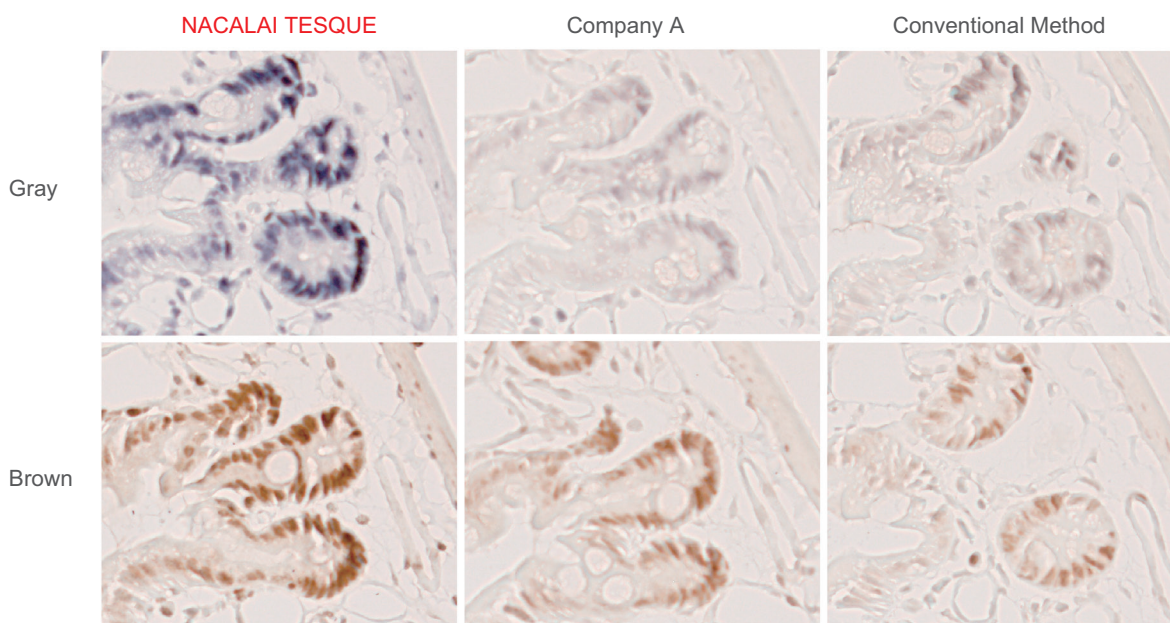
Peroxidase Stain DAB Kit (Brown Stain) is used to detect horseradish peroxidase (HRP) activity in immunoblotting, immunohistochemistry and *in situ* hybridization.

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 Enhancer for DAB Stain used with Peroxidase Stain DAB Kit (Brown Stain) is about two times higher than the one 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 (with attached nickel solution)
(Brown) Kit (without attached nickel solution)

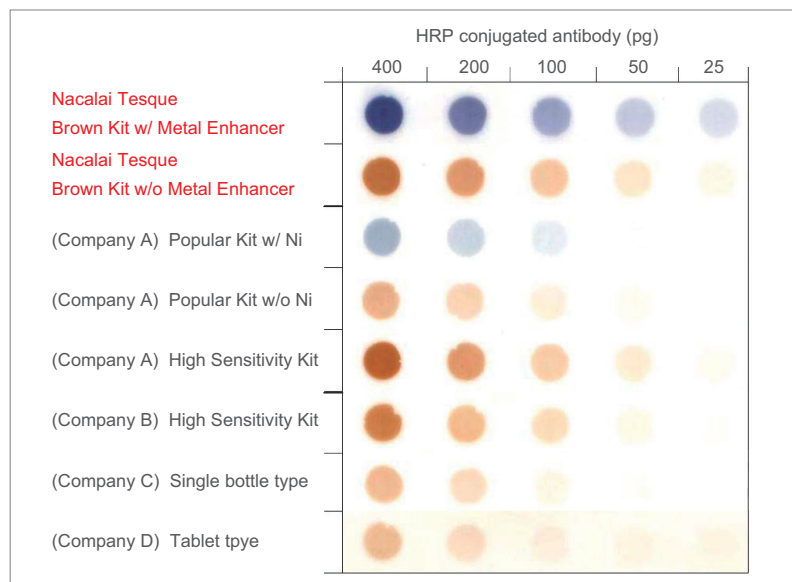
Basic method : (Gray) 0.6mg/ml DAB, 0.03% H_2O_2 , 50mM Tris-HCl Buffer pH7.6, 0.03% $NiCl_2$
(Brown) 0.6mg/ml DAB, 0.03% H_2O_2 , 50mM Tris-HCl Buffer pH7.6

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.

High Sensitive Peroxidase DAB Stain (continued)

Comparison Application

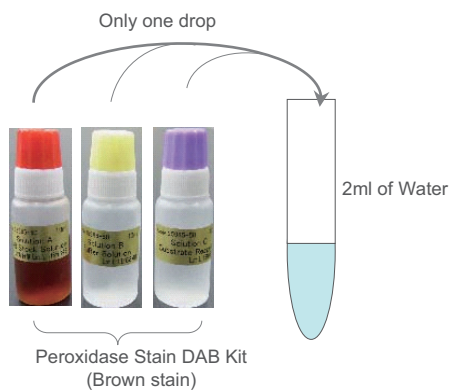
Comparison of DAB Stain by dot blot



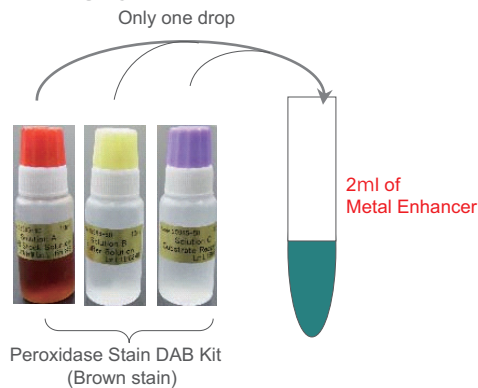
The sensitivity achieved with Peroxidase Stain DAB kit (Brown Stain) alone is higher than can be obtained with our competitors' products. Furthermore, the sensitivity of Metal Enhancer for DAB stain, when used in conjunction with Peroxidase Stain DAB kit (Brown Stain), is about two times higher than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

Protocol

When brown stain is used



When gray stain is used



Add one drop from each bottle in the Peroxidase Stain DAB solution kit 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



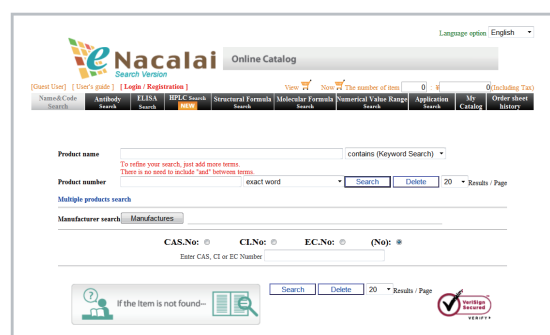
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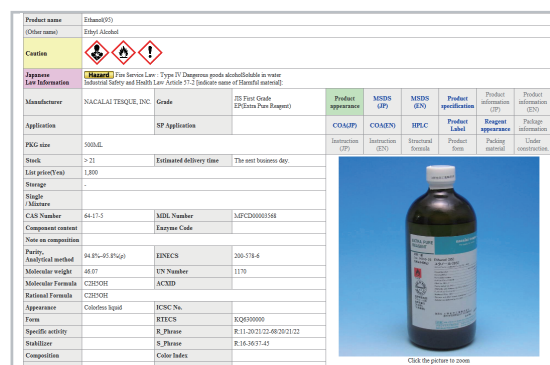
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- CAS No., CI No., EC No.
- Antibody
- ELISA
- HPLC Column **NEW**
- Structural Formula
- Molecular Formula
- Numerical Value Range
- Application
- etc.



Product information

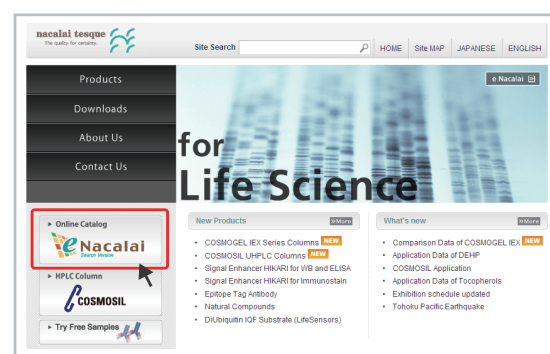
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