

Wako Product Update

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1. Proteome Research

Cationized Matrix for MALDI-TOFMS of sialylated glycans and glycolipids

Sodium salt and lithium salt of 2,5-Dihydroxybenzoic Acid (DHB), which is generally used as matrix for the Matrix-assisted laser desorption/ionization (MALDI) method.

Their use as cationization agents combined with DHB at a ratio of 9:1 has been reported to have benefits such as improved ionic strength and inhibited elimination of sialic acid of the mass spectra in sialic acid-containing sugar chains / glycolipids such as ganglioside.

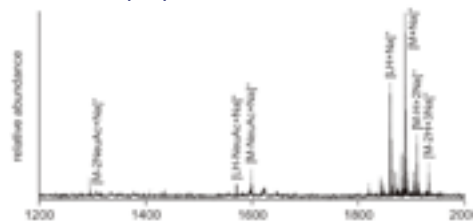
[Chemical structure of Ganglioside]



Fig. on the right:

In both DHB Na and DHB Li, $[M+Na]^+$ and $[M+Li]^+$ were strongly observed, while there were very little desorbed ions from sialic acid $[M-NeuAc+Na]^+$ and $[M-NeuAc+Li]^+$. Further interesting observation is that although in the case of DHB Na, ions where sialic acid carboxyl groups (COOH), such as $[M-H+2Na]^+$ and $[M-2H+3Na]^+$ are substituted by Na (COONa), almost no such substituted ions were observed when DHB Li was used.

DHB/DHB Na (9:1)



DHB/DHB Li (9:1)

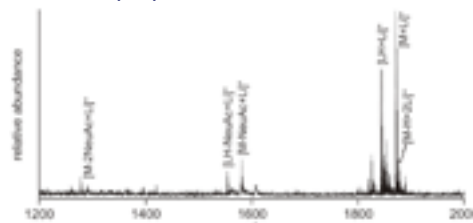


Figure: Mass spectra of ganglioside GD1a
<M=GD1a (C20:1), LH=GD1a (C18:1)>
(These data were provided by Dr. M. Tajiri at Japan Science and Technology Agency and Dr. Y. Wada at Osaka Medical Center for Maternal and Child Health.)

[Product List]

Description	Catalog No.	Pkg. Size	Formula and M.W.	Solvent
2,5-Dihydroxybenzoic Acid Na Salt [DHB Na Salt], 99.5+% (HPLC)	041-29471	50 mg	C ₇ H ₅ NaO ₄ =176.10	H ₂ O and MeOH
2,5-Dihydroxybenzoic Acid Li Salt [DHB Li Salt], 99.5+% (HPLC)	048-29481	50 mg	C ₇ H ₅ LiO ₄ =160.05	MeOH
[Related Products] <High-purity Matrix for MALDI-TOFMS analysis>				
<i>α</i> -Cyano-4-hydroxycinnamic Acid [CHCA], 99.5+% (HPLC)	037-19261	5 × 50 mg	C ₁₀ H ₇ NO ₃ =189.17	
Sinapic Acid [SA], 99.5+% (HPLC)	192-13361	5 × 50 mg	CAS NO. 530-59-6; C ₁₁ H ₁₂ O ₅ =224.21	
2,5-Dihydroxybenzoic Acid [DHB], 99.5+% (HPLC)	044-29101	5 × 50 mg	CAS 490-79-9, C ₇ H ₆ O ₄ =154.12	

Protein Electrophoresis

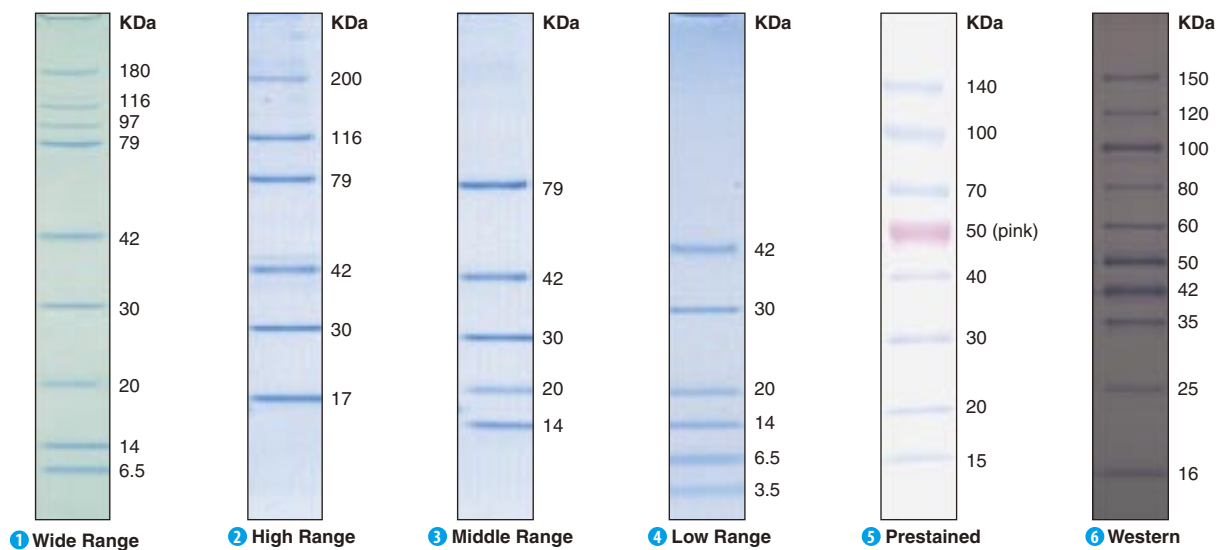
Molecular weight markers for SDS-PAGE and a Western blotting marker

Unstained, prestained, and Western markers are available.

Unstained markers produce clear stains and each band is evenly stained because the protein bands are reduced and alkylated.

In the prestained marker, each of blue and pink chromophore is covalently bound to each recombinant protein. At 50kDa, a pink band is observed, and the other bands are blue.

The Western marker reacts to both the primary and secondary antibodies in Western blot due to recombinant proteins (protein G), which have binding capacity with immunoglobulin.



[Product List]

Description		Cat. No.	Pkg. Size	
Molecular weight markers				
1	Molecular Weight Marker, Wide Range	296-63301	for 1 mL	for 200 tests
2	Molecular Weight Marker, High Range	134-14501	for 1 mL	for 200 tests
3	Molecular Weight Marker, Middle Range	131-14511	for 1 mL	for 200 tests
4	Molecular Weight Marker, Low Range	294-63101	for 1 mL	for 200 tests
5	WIDE-VIEW™ Prestained Protein Size Marker	230-02221	500 μL	for 100 tests
Requires no heating prior to use after reconstitution.				
Western blotting marker				
6	WIDE-VIEW™ Western Size Marker	233-02211	250 μL	for 50~250 tests
Highly purified recombinant proteins (Protein G) are contained.				

Sample Buffer, 4x Concentrate for Laemmli SDS-PAGE

[Product List]

Description	Composition	Cat. No.	Pkg. Size
Sample Buffer Soln. (2ME+)(4×)	0.25 mol/L Tris-HCl (pH 6.8), 8 w/v% SDS, 40 w/v% Glycerol, 0.02 w/v% BPB and 20 vol% 2-Mercaptoethanol	191-13272	25 mL
Sample Buffer Soln. (2ME-)(4×)	0.25 mol/L Tris-HCl (pH 6.8), 8 w/v% SDS, 40 w/v% Glycerol, and 0.02 w/v% BPB	198-13282	25 mL

[Related Products]

Sample Buffer Soln. (2ME+)(2×)	Sample buffer for the Laemmli method, containing 2-Mercaptoethanol	196-11022	25 mL
Sample Buffer Soln. (2ME-)(2×)	Sample buffer for the Laemmli method, without 2-Mercaptoethanol	193-11032	25 mL
Running Buffer Soln. (10×)	Tris-glycine-SDS buffer for the Laemmli method	184-01291	1 L

BMP Antagonist

Noggin, Human, recombinant [rhNoggin]

for Cellbiology

★Wako Cat. #146-07771 20 µg

Noggin is one Bone Morphogenetic Protein (BMP) antagonist that interacts with BMP receptors to inhibit BMP signaling, and is widely associated with the formation of the dorsal-ventral axis in the field of embryology. In addition, it is known to induce the differentiation of central nervous system cells when it acts on undifferentiated ectodermal cells as a neural factor.

[Source] Human noggin cDNA in *E. coli*

[Activity] ED₅₀ = 0.05 - 0.08 µg/mL
(Inhibition of alkaline phosphatase induction in chondrocyte-like ATDC-5 cells with 5.0 ng/mL of BMP-4)

Regulatory Factor for Chondrocyte Differentiation

Parathyroid Hormone Related Protein,

Human, recombinant [rhPTHrP]

for Cellbiology

★Wako Cat. #165-21141 50 µg

rhPTHrP has an N-terminal amino-acid sequence homologous with human Parathyroid Hormone Related Protein (PTH), and that segment of the sequence exerts an action similar to that of PTH. It is also known as an inhibitor of chondrocyte maturation, whose mechanism controls chondrocyte differentiation by the intermediary of PTHrP receptors expressed in the prehypertrophic chondrocytes.

[Source] Human PTHrP cDNA expressed in *E. coli*

[Molecular Weight] 9,800

Research on Biological Defense Mechanism

Lipopolysaccharide (LPS)

for Cellbiology

LPS is the major component of the outer membrane of Gram-negative bacteria. Products prepared by isolating rough LPS from *E. coli* by phenol-water extraction (Westphal method) (product purified by phenol extraction) and products purified by ultracentrifugation and washed twice (product purified by ultracentrifugation) are available. These can be used for studies on the induction of various inflammatory responses.

[Source] *E. coli*

[Appearance] Lyophilized

[Product List]

Description	Bacterial strain	Purification	Wako Cat. No.	Pkg. Size
Lipopolysaccharide				
from <i>E. coli</i> O26	O26	by phenol extraction	120-05131	25 mg
from <i>E. coli</i> O55	O55		127-05141	25 mg
from <i>E. coli</i> O127	O127		124-05151	25 mg
from <i>E. coli</i> O26	O26	by ultracentrifugation	121-05161	5 mg
from <i>E. coli</i> O55	O55		128-05171	5 mg
from <i>E. coli</i> O111	O111		125-05181	5 mg
from <i>E. coli</i> O127	O127		122-05191	5 mg

ALPHABETICAL INDEX		
	page	Description
A	5	17-AAG
	6	Aldosterone
	5	17-(Allylamino)-17-desmethoxygeldanamycin
	5	Allylaminogeldanamycin
	6	Ansamitocin P-3
	6	AOM
	6	Azoxymethane
C	5	Caged Ins (1,4,5)P ₃ Trisodium Salt
	5	Caged-D- <i>myo</i> -inositol 1,4,5-triphosphate.3Na
	1	CHCA
	8	Collagen, Type I, from Salmon Skin
	8	Collagen, Type V
	8	Collagenase
	8	Collagenase Type I
	8	Collagenase Type V
	8	Collagenase Type X
	8	Collagenpeptide, Acid Hydrolyzed
	8	Collagenpeptide, Enzyme Hydrolyzed
	1	α-Cyano-4-hydroxycinnamic Acid
	D	5
1		DHB
1		DHB Li Salt
1		DHB Na Salt
1		2,5-Dihydroxybenzoic Acid
1		2,5-Dihydroxybenzoic Acid Li Salt
1		2,5-Dihydroxybenzoic Acid Na Salt
6		7,12-Dimethylbenz [α] anthracene
6	DMIP	
F	7	Functional Polymer
H	7	17(S)-HpDHA
	7	15(S)-HpEPA
	7	15(S)-HpETE
	7	13(S)-HpODE
	7	13(S)-HpOTrE
I	4	ITSA1
L	7	Lipoperoxides
	3	Lipopolysaccharide, from <i>E. coli</i>
	3	LPS, from <i>E. coli</i>
M	4	M344
	4	MC 1293
	2	Molecular Weight Marker
	4	MS-275
N	6	4-Nitroquinoline-1-Oxide
	3	Noggin, Human, recombinant
	3	Parathyroid Hormone Related Protein, Human, recombinant
P	6	PhIP Hydrochloride
	4	Piceatannol
	7	Poly-γ-Glutamic Acid
	7	Poly-γ-Glutamic Acid Na Salt
	3	rhNoggin
R	3	rhPTHrP
	2	Running Buffer Solution
	1	SA
S	2	Sample Buffer Solution (2ME-)
	2	Sample Buffer Solution (2ME+)
	5	SH-5
	5	SH-6
	1	Sinapic Acid
	4	Sirtinol
W	4	Splitomicin
	2	Western blotting marker
	2	WIDE-VIEW™ Prestained Protein Size Marker
	2	WIDE-VIEW™ Western Size Marker

[Related products](#)

For Research on Cell Cycle and Transcription

Histone Deacetylase (HDAC) Inhibitor

for Cellbiology

Histone deacetylase (HDAC) plays a central role in chromatin structure formation associated with the nuclear distribution of DNA. There are presently 17 known types of this enzyme in mammals, which are classified into 3 classes (see table below). Also, HDAC Class III has been reported to be associated with regulation of aging and life span.

Classification of Mammalian HDAC	Features	HDAC Types
Class I	Localized in the nucleus. Is similar to RPD3 enzyme.	HDAC 1 ~ 3, 8
Class II	Localized in the nucleus and cytoplasm and shuttles between the two. Is similar to HDA1 enzyme.	HDAC 4 ~ 7, 9, 10
Class III	NAD-dependent enzyme. Localized in the nucleus and cytoplasm. Also called Sirtuin and is similar to SIR2 enzyme.	Sirt 1 ~ 7

HDAC inhibitors show connections with cell division cycles and differentiation, as well as with antitumor activity and apoptosis-inducing activity through the inhibition of the deacetylating activity of HDAC. They can be used for studies on cellular functions involving histone deacetylase.

Description	Wako Cat. No.	Pkg. Size	Activity to HDAC	Chemical Structure
M344	139-14671	1 mg	Inhibitor of HDAC Class I and II. Structural homologue of Trichostatin A.	 C ₁₆ H ₂₅ N ₃ O ₃ =307.39
ITSA1	093-05251	5 mg	Inhibitor of Trichostatin A.	 C ₁₃ H ₇ Cl ₂ N ₃ O=292.12
MC 1293	136-14681	5 mg	Inhibitor of HDAC1 and maize deacetylase.	 C ₁₆ H ₁₆ N ₂ O ₃ =284.31
MS-275	132-14661	1 mg	Inhibits HDAC1 and HDAC3 but does not affect HDAC8.	 C ₂₁ H ₂₀ N ₄ O ₃ =376.41
Piceatannol	169-21661	10 mg	Activator of HDAC Class III and inhibitor of kinase Syk.	 C ₁₄ H ₁₂ O ₄ =244.24
Sirtinol	197-13671	5 mg	Inhibitor of HDAC Class III. Cell-permeable.	 C ₂₆ H ₂₂ N ₂ O ₂ =394.47
Splitomicin	190-13661	1 mg	Inhibitor of HDAC Class III. Cell-permeable.	 C ₁₃ H ₁₀ O ₂ =198.22

PI3K-Related Reagents

Reagents for Studies on Signal Transduction

for Cell Biology

Phosphoinositide 3-kinase (PI3K)-mediated signal transduction pathways play a key role in translating a variety of extracellular stimuli including growth factors and hormones into cellular processes such as cell growth, cell cycle progression, cell motility, cell adhesion, and cell survival. PI3K responds to extracellular stimuli and becomes activated to produce PI(3,4,5)P3 with PI(4,5)P2 as substrates. Reaction products produced through activation of PI3K bind to pleckstrin homology (PH) domains of Akt (Protein Kinase B: PKB) and become activated to deliver the signals. Recent studies have reported that Akt activation is associated with cell cancerization and that Akt inactivation induces apoptosis.

Signaling Inhibitors

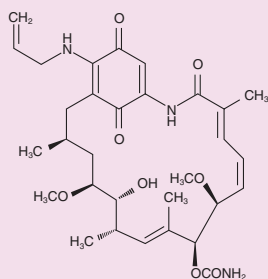
17-AAG

★Wako Catalog No. 012-20101; 1 mg

[17-(Allylamino)-17-desmethoxygeldanamycin;
Allylamino-geldanamycin]

Binding to the ATPase activity pocket in the structure of HSP90, it is a geldanamycin derivative that inhibits the function of HSP90. HSP90 inhibition causes Akt to be dephosphorylated, resulting in Akt inactivation and apoptosis induction. Because HSP90 reduces erbB-1, erbB-2 (EC₅₀=45nM), p53 (EC₅₀=62nM), Raf-1 (EC₅₀=80nM), and Akt (PKB) in cancer cells, it blocks Ras/Raf/MEK and PI3K signaling pathways.

- CAS No. 75747-14-7
- C₃₁H₄₃N₃O₈= 585.69
- Appearance:
Red ~ darkish red, powder
- Solubility:
Soluble in DMSO and Methanol



[References]

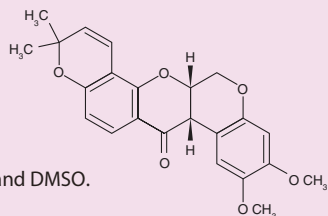
- 1) Zhou, P. et al.: *J. Biol. Chem.*, **278**, 13829 (2003).
- 2) Vila, P. et al.: *Carcinogenesis*, **24**, 851 (2003).
- 3) Vasilevskaya, I. A. et al.: *Cancer Res.*, **63**, 3241 (2003).
- 4) Kamal, A. et al.: *Nature*, **425**, 407 (2003).

Deguelin

★Wako Catalog No. 047-29211; 5mg

Deguelin inhibits Akt (PKB) activation in *in vitro* models of lung carcinogenesis, inhibits growth of cells before they become malignant as well as growth of malignant cell lines, and induces apoptosis. An *in vitro* 2-stage carcinogenesis study showed powerful inhibitory effects in skin tumor development in mice.

- C₂₃H₂₂O₆=394.42
- CAS. No: 522-17-8
- Appearance: Yellow, powder
- Solubility: Soluble in acetone, dichloromethane, acetonitrile and DMSO.



[References]

- 1) Chun, K. H. et al.: *J. Natl. Cancer Inst.*, **95**, 291 (2003).
- 2) Ito, C. et al.: *Planta Med.*, **70**, 8 (2004).

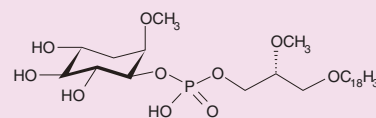
SH-5 and SH-6

By binding to the PH domain of Akt, SH-5 and SH-6 selectively inhibit Akt activation, without affecting activation of the upstream kinase PDK-1 or other kinases downstream of Ras such as MAPK. They induce apoptosis in various cancer cell lines with active Akt and cause cell death.

SH-5

★Wako Catalog No. 192-13501; 500 µg

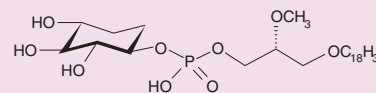
- C₂₉H₅₉O₁₀P=598.75
- Appearance: White ~ grayish white, solid
- Solubility: Soluble in DMSO, Methanol and water.



SH-6

★Wako Catalog No. 199-13511; 500 µg

- C₂₈H₅₇O₉P=568.72
- Appearance: White ~ grayish white, solid
- Solubility: Soluble in DMSO, methanol and water



[Reference] Kozikowski, A. P. et al.: *JACS.*, **125**, 1144 (2003).

Signal Transduction-Related Reagents

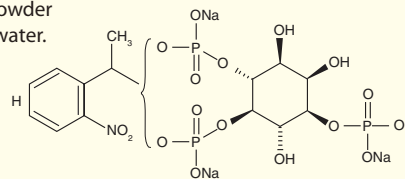
Caged Ins (1,4,5) P3 Trisodium Salt

★Wako Cat. No. 038-19431; 10 µg

[Caged-D-myoinositol 1,4,5-triphosphate. 3Na]

Caged Inositol polyphosphate, which is not biologically active, can be selectively released by irradiation with a short pulse of light of 250nm or 360nm to produce a concentration jump of Ins (1,4,5)P3. Thus it can mimic the rapid responses of signal transduction in the cell. This Ins(1,4,5)P3 derivative is not metabolized by endogenous phosphatase, and because it does not activate other signaling pathways, it is suitable for examining signal transduction in the activation of PKC immediately following receptor-mediated diacylglycerol formation.

- C₁₄H₁₉NO₁₇P₃•3Na=635.19
- Appearance: White, powder
- Solubility: Soluble in water.

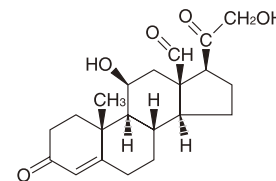


[Reference] Walker, J. W. et al.: *Nature*, **327**, 249 (1987).

Mineralocorticoid

Aldosterone

Aldosterone, an adrenocortical hormone is the mineralocorticoid involved in electrolyte metabolism. It promotes the reabsorption of sodium ions in the distal convoluted tubule, and stimulates the release of potassium ions and hydrogen ions.



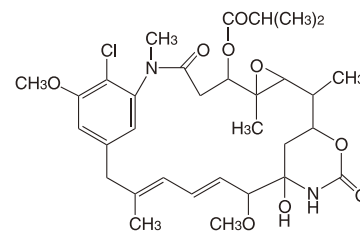
C₂₁H₂₈O₅=360.44
Assay (HPLC): 97+%, CAS No. 52-39-1

Description	Grade	Wako Cat. No. (Pkg. Size)
Aldosterone [<i>d</i> -Aldosterone, (+)-Aldosterone]	for Cellbiology	010-19891 (5 mg); 016-19893 (25 mg)

Mitosis Inhibitor, Cell Cycle Inhibitor, Synchronized Culture Reagent

Ansamitocin P-3

Ansamitocin P-3 is an antitumor antibiotic produced by actinomycetes (*Actinosynnema pretiosum*), which specifically inhibits eukaryotic mitosis. Its mechanism of action directly binds to tubulin, which forms microtubules, and blocks polymerization. It is also said to promote depolymerization of microtubules, resulting their loss of dynamicity.



C₃₂H₄₃ClN₂O₉=635.15
Assay (HPLC): 95.0+%, CAS No. 66547-09-9

[Stability]

- Stable as a solid in a cool and dark place
- The solution is stable at pH 2 - 9, unstable at pH10 or higher

[Product List]

Description	Grade	Wako Cat. No. (Pkg. Size)
Ansamitocin P-3	for Biochemistry	018-14831 (5 mg)

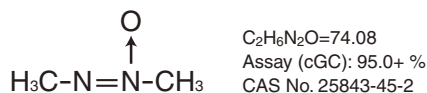
4. Cancer Research

Model rodent colon carcinogen

Azoxymethane [AOM]

AOM induces colon cancer in mice and rats effectively, and is widely used as a substance to cause colon tumors in laboratory animals in the research of cancer prevention substances and the mechanism of cancer formation. In addition, amidst growing concerns over rising cases of colon cancer, the search for cancer prevention substances is believed to be increasingly popular, and thus the importance of the role this product plays is growing.

The average dose of this product consists of a subcutaneous injection of 15mg/kg (weight) in rats once a week, for a period of about 3 weeks. After a few weeks, precancerous lesions (ACF) are observed.



Description	Grade	Wako Catalog No.	Package Size
Azoxymethane	for Cell Biology	011-20171	100 mg

Related Products –Carcinogens–

Description	Induced Cancer	Grade	Wako Catalog No.	Package Size
7,12-Dimethylbenz[<i>α</i>]anthracene	Breast cancer	Wako Special Grade	042-02801	1 g
DMIP	Colon cancer	for Biochemistry	049-24891	20 mg
4-Nitroquinoline 1-oxide	Ovarian tumor, leukemia	Wako Special Grade	147-03421	1 g
Phlp hydrochloride	Mouth cancer (tongue cancer)	for Biochemistry	163-15951	100 mg

Higher Molecular Weight Polymer Isolated from a Fermented Soybean Food

Poly- γ -Glutamic Acid



for Biochemistry

Poly- γ -glutamic acid is a polymer formed by peptide bond between γ -carboxyl group and α -amino group (see fig. below) and is derived from bacteria of the genus *Bacillus* such as mainly *Bacillus natto*.

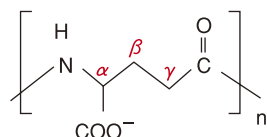
This product is produced by *Bacillus subtilis chungkookjang* isolated from chungkookjang, a traditional Korean fermented soybean food, and because of its much higher molecular weight (200000 - 6000000) than the poly- γ -glutamic acid commonly produced by *Bacillus natto*, it is a substance with application potentials as a functional polymer in a wide variety of fields including cosmetics, medicine, and industrial products, such as water absorption agents, moisturizing agents, thickening agents, absorption enhancers of minerals, sustained release drug delivery systems (DDS), and biodegradable agglomerated detergents.

This product is available in 3 types of average molecular weight, and each of these is offered in 2 types, namely sodium-free and with sodium, for a total of 6 types.

[Features]

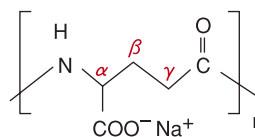
1. DL mixture (D : L = 7 : 3)
2. Stable viscosity: viscosity level of these solution is relatively stable against pH and temperature changes.
3. Average molecular weights confirmed for each lot

Free acid



Suitable for radiation-induced cross-linking reactions. Known to produce excellent water absorption agents as a result of increasingly complex higher-order structures formed by irradiation. Low solubility in water (soluble in alkali).

Sodium salt



Highly soluble in water, and stimulates the *in vivo* absorption of minerals (such as Ca ions).

[Product List]

Description <average M.W.>	Wako Catalog No. (Pkg. Size)
Poly-γ-Glutamic Acid	
<average M.W. 200,000 ~ 500,000>	161-21361 (1 g); 167-21363 (10 g); 165-21364 (50 g)
<average M.W. 1,500,000 ~ 2,500,000>	168-21371 (1 g); 164-21373 (10 g); 162-21374 (50 g)
<average M.W. 4,000,000 ~ 6,000,000>	165-21381 (1 g); 161-21383 (10 g); 169-21384 (50 g)
Poly-γ-Glutamic Acid Sodium Salt	
<average M.W. 200,000 ~ 500,000>	162-21391 (1 g); 168-21393 (10 g); 166-21394 (50 g)
<average M.W. 1,500,000 ~ 2,500,000>	165-21401 (1 g); 161-21403 (10 g); 169-21404 (50 g)
<average M.W. 4,000,000 ~ 6,000,000>	162-21411 (1 g); 168-21413 (10 g); 166-21414 (50 g)

Lipoperoxides

Lipoperoxides are formed by oxidization of unsaturated fatty acids contained in lipids such as vegetable fats. Within the living body, they are known as one of the culprits of arteriosclerosis, whereby blood cholesterol changes into lipoperoxide due to free oxygen radicals. In addition, studies have also suggested associations with aging and diabetic cataract.

[Product List]

Description	Unsaturated fatty acid peroxidized	Wako Catalog No. (Pkg. Size)	Physical Data
13(S)-HpODE <3 mg/mL in ethanol>	Linoleic acid	082-08003 (100 μ L) 086-08001 (0.5mL)	 $C_{18}H_{32}O_4=312.44$
13(S)-HpOTRE <3 mg/mL in ethanol>	Linolenic acid	084-08041 (100 μ L) 080-08043 (0.5mL)	 $C_{18}H_{30}O_4=310.43$
15(S)-HpETE <2 mg/mL in ethanol>	Arachidonic acid	087-08031 (100 μ L) 083-08033 (0.5mL)	 $C_{20}H_{32}O_4=336.47$
15(S)-HpEPA <2 mg/mL in ethanol>	Eicosapentaenoic acid (EPA)	087-08151 (100 μ L) 083-08153 (0.5mL)	 $C_{20}H_{30}O_4=334.45$
17(S)-HpDHA <2 mg/mL in ethanol>	Docosahexaenoic acid (DHA)	084-08161 (100 μ L) 080-08163 (0.5mL)	 $C_{22}H_{32}O_4=360.49$

Highly safe attachment factor !

Collagen, Type I, from Salmon Skin

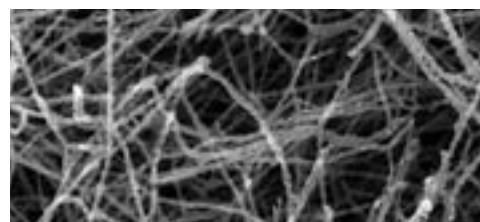
Collagen is a major protein that forms the basis for connective tissue of animals and is found in various tissues such as skin, cartilage, tendon, and vessel walls. It has physical functions such as structure building, support, reinforcement, and boundary formation for the entire body or tissues, and biological functions that inhibit cellular activity as intracellular substrate. The molecular structure of collagen consists of a helical structure composed of 3 polypeptide chains. Depending on the amino-acid sequencing of the polypeptide chains or their combinations, they are called type I, type II, etc. In total they are categorized into 20 types.

This product is derived from salmon caught in the sea around Hokkaido. Therefore the collagen is very safe against infections such as BSE. In addition, this product consists of collagen type I, which is most widely present in the animal world among the different molecular species of collagen. Collagen from salmon can produce collagen fibers even in low temperatures due to lower denaturation temperatures than bovine and porcine-derived collagen. Therefore it shows a strong affinity for cells, as well as excellent performance as an extracellular matrix of cultured cells.

This product can be used as an extracellular matrix for adhesion promotion of cultured cells to culture devices, promotion of cell growth and differentiation, and tissue cultures that maintain tertiary structures. This collagen is also suitable not only for common cultured cells but also for research with possible applications in the clinical field.

[Features]

1. Very safe collagen isolated from salmon skin
2. Shows a strong affinity for cells
3. A unique technique allows for a high-purity product with very little fishy odor
4. Water-soluble collagen. Dissolves in water or in appropriate buffer solution
5. Although it originally constitutes a protein with low antigenic levels, protease treatment further decreases the antigenic levels



Description	Grade	Code No.	Pkg. Size
Collagen, Type I, from Salmon Skin	for Biochemistry	031-19443 031-19441	200 mg 1 g

Related Products

Description	Grade	Code No.
Collagen, Type V Soln, from Human Placenta	for Biochemistry	034-11231 (100 µg)
Collagenpeptide, Acid Hydrolyzed	for Biochemistry	032-15791 (250 g)
Collagenpeptide, Enzyme Hydrolyzed	for Biochemistry	035-15801 (250 g)
Collagenase	for Collagen Analysis	034-13291 (25 mg)
Collagenase	for Cell Dispersion	038-10531 (100 mg); 034-10533 (1 g); 032-10534 (5 g)
Collagenase Type I	for Cell Dispersion	031-17601 (100 mg); 037-17603 (500 mg); 035-17604 (1 g)
Collagenase Type V	for Cell Dispersion	038-17851 (100 mg); 034-17853 (500 mg); 032-17854 (1 g)
Collagenase Type X	for Cell Dispersion	035-17861 (100 mg); 031-17863 (500 mg); 039-17864 (1 g)

- Listed products are intended for laboratory research use only, but not to be used for drug, food or human use.
- Please visit our online catalog to search for other products from Wako ; <http://search.wako-chem.com>
- This brochure may contain products that cannot be exported to your country due to regulations.
- Bulk quote requests for some products are welcomed. Please contact us.

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