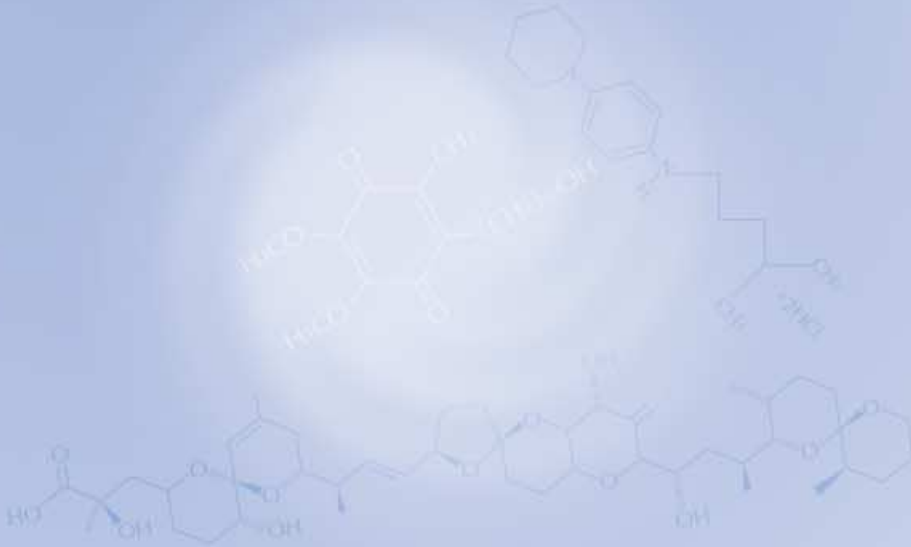


Wako Product Update

BIOCHEMISTRY



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Wako

BIOCHEMISTRY

1. Diabetes and Obesity Research..... 1

- Rat Glucagon ELISA Kit *wako* (#297-57101)
- Rat C-peptide ELISA Kit *wako* (#295-57401)
- Aldose Reductase, Human, recombinant, 95.0+% (#547-00581)
- Sulfuretin, 95.0+% (#195-12491)
- Sorbitol Dehydrogenase (EC 1.1.1.14) (#199-12391)
- Streptozotocin (#549-00281; #545-00283; #543-00284; #549-00286)
- Betacellulin, Human, recombinant (#025-14381)
- Betacellulin, Rat, recombinant (#022-14391)
- AD-5467 (#017-19421)
- Nobiletin, 95.0% (HPLC) (#149-07521)
- Tangeretin, 95.0% (HPLC) (#208-15671)

[Related Products]

Theaflavin; Theaflavin-3-gallate; Theaflavin-3'-gallate; Theaflavin-3,3'-digallate; (-)-Epicatechin; (-)-Epicatechin Gallate; (-)-Epigallocatechin; (-)-Epigallocatechin Gallate; Catechin Mixture; 6"-O-Acetylaidzin; 6"-O-Acetylgenistin; 6"-O-Acetylglycitin; Daidzin; Daidzein; Glycitin; Glycitein; Genistin; Genistein; Isoflavone (Aglycon) Mixture; 6"-O-Malonyldaidzin; 6"-O-Malonylgenistin; 6"-O-Malonylglycitin

- Compactin [ML-236B], 95+% (HPLC) (#033-17301)
- Lovastatin, 95+% (HPLC) (#125-04581)
- Simvastatin, 95+% (HPLC) (#193-12051; #199-12053)
- Pravastatin Sodium Salt, 95+% (HPLC) (#162-19821; #168-19823)
- Rat Leptin ELISA Kit *wako* (#297-57601)
- TMP-153 (#207-15641)

2. Signal Transduction..... 6

- Dinophysistoxin-1 (#042-28661)

[Related Products]

- Okadaic Acid; Okadaic Acid Ammonium Salt; Calyculin A
- Agosterol A (#016-19511)
- Idebenone (#096-05001)
- T-43362 (#203-15741)
- Ras Inhibitory Peptide (#182-01731)
- Geranylgeranylpyrophosphate Triammonium Salt Solution (#076-04781)
- Farnesylpyrophosphate Triammonium Salt Solution (#065-04211)

3. *in situ* Zymography..... 8

- MMP *in situ* Zymo-Film (#295-58001)
- MMP-PT *in situ* Zymo-Film (#291-58101)

[Related Products]

BiebrichScarlet Stain Solution; Mayer's Hematoxylin Solution; Amido Black 10B

4. Detection of Peptidoglycan & β -Glucan..... 9

- SLP-HS Single Reagent Set (#293-58301)

[Related Products]

SLP-Reagent Set; Peptidoglycan; Curdlan; CM-Curdlan; Limulus Test Tube-S; Aluminium Cap-S; Bio-Clean tips Wako 1000; Bio-Clean tips Wako 200; Bio-Clean tips Wako Extend S

Rat Glucagon ELISA Kit wako

Cat. #297-57101 96 tests
2-10°C

Glucagon is known as a hormone secreted from the pancreas and intestines. This kit aims at measurement of rat Glucagon peptide secreted from pancreatic α -cells by competitive format. Pancreatic Glucagon plays a important role in regulating sugar levels by elevating sugar in the blood, together with insulin.

[Principle]

Mixture of biotinylated rat Pancreatic Glucagon and that in the sample or the standard material binds to rabbit antibody specific to rat Pancreatic Glucagon coated on the microplate well surface in competitive fashion. Sequential reaction with HRP-conjugated streptavidin results in a formation of HRP-streptavidin-biotin-antibody complex in the well, which catalyzes hydrogen peroxide, generating color by oxidation of an acceptor substrate.

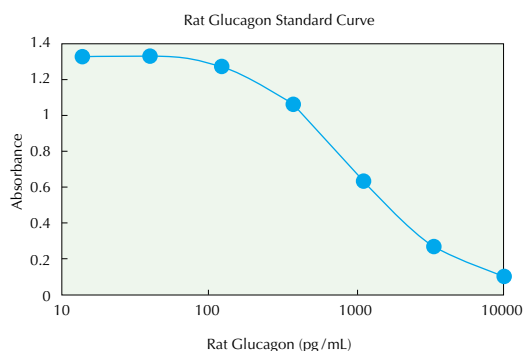
Dynamic range : 50 ~ 10,000 pg/mL

Cross-reactivity

Specific to rat pancreatic Glucagon, but not cross-reactive to intestinal Glucagon nor Glucagon-like peptides as GLP-1 and GLP-2.

[Kit Contents (96 tests)]

1. Antibody-coated Microtiter Plate (Anti Rat Glucagon, Rabbit)	1 plate
2. Rat Glucagon Standard	10 ng
3. Biotinylated Rat Glucagon	for 6 mL
4. HRP-conjugated Streptavidin	12 mL
5. Chromogen (OPD Tablet)	2 tablets
6. Chromogen Diluent Solution	26 mL
7. Buffer A	10 mL
8. Buffer B	15 mL
9. Wash Stock Solution (20 ×)	50 mL
10. Stop Solution (1 mol/L H ₂ SO ₄)	12 mL
11. Adhesive Plate Cover	4 covers



Rat C-peptide ELISA Kit wako

Cat. #295-57401 96 tests
2-10°C

Insulin C-peptide (InsC-peptide) is derived from proinsulin by processing in vivo, and released into blood in almost equal molarity to insulin. By measurement of InsC-peptide in the serum, insulin secretion on pancreatic β cells in insulin-administrated rats and rats bearing antibody to insulin could be monitored.

[Principle]

On the surface of the microplate wells, goat anti rabbit IgG is coated, and when sample is reacted with rabbit anti rat InsC-peptide and biotinylated rat InsC-peptide in the well, the goat antibody captures the complex of the rabbit antibody and rat InsC-peptide formed in competitive reaction. Subsequent reaction with horseradish peroxidase (HRP)-conjugated streptavidin to the complex on the well surface results in labeling of the complex with HRP which generates the signal for the presence of rat InsC-peptide in the sample.

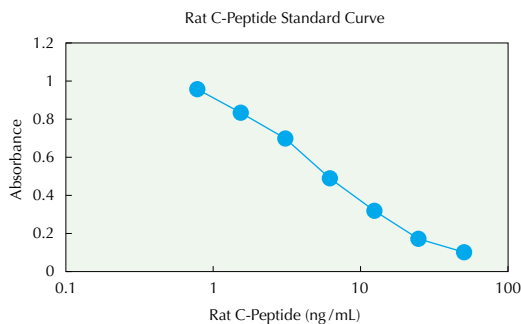
Dynamic range : 1.56 ~ 50 ng/mL

Cross-reactivity

Specific to rat InsC-peptide, but not reactive to either the corresponding of the other animal.

[Kit Contents (96 tests)]

1. Antibody-coated Microtiter Plate	1 plate
2. Rat C-Peptide Standard	50 ng
3. Biotinylated Rat C-Peptide	for 8 mL
4. Anti Rat C-Peptide, Rabbit	12 mL
5. HRP-conjugated Streptavidin	12 mL
6. Chromogen (OPD Tablet)	2 tablets
7. Chromogen Diluent Solution	24 mL
8. Wash Stock Solution (20 ×)	50 mL
9. Buffer	35 mL
10. Stop Solution (1 mol/L H ₂ SO ₄)	12 mL
11. Adhesive Plate Cover	3 covers



For Research of Diabetic Complications**Aldose Reductase, Human, recombinant, 95.0+%**

for Biochemistry

Cat. #547-00581 0.4 units**-20°C, D/I, Liquid**

Molecular Weight : Approx. 36,000

Appearance : Dissolved in 5mM DTT, 50% Glycerin solution, and 50mM Na₂HPO₄ buffer solution (pH 7.0)

Specific Activity : 1.5 ± 0.2 units/mg protein

Aldose Reductase catalyzes the reduction of glucose to sorbitol. Sorbitol is subsequently converted to fructose by sorbitol dehydrogenase. These two enzymes are key components of the polyol pathway, the alternate route of glucose metabolism. It is suggested that aldose reductase is involved in the pathogenesis of diabetic complications and the inhibitors continue to be developed at a vigorous pace.

[Reference]1) Nishimura, C. *et al.* : *Biochim Biophys. Acta.*, **1078**, 171 (1991).**Aldose Reductase Inhibitor****Sulfuretin, 95.0+%**

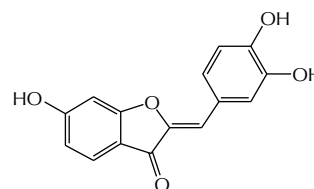
for Biochemistry

Cat. #195-12491 20 mg**2-10°C, Solid**

Sulfuretin, characterized by aurones, is an old compound in the flavonoid family.

Recently, however, its inhibitory effect on aldose reductase was elucidated.

Aldose Reductase Inhibitors inhibit accumulation of sorbitol in tissues and therefore are useful in research on preventing diabetic complications including neuropathy, retinopathy, and nephropathy. This product is a synthetic compound.

C₁₅H₁₀O₅ = 270.24**For Accurate Quantification of Sorbitol****Sorbitol Dehydrogenase (EC 1.1.1.14)**

for Biochemistry

Cat. #199-12391 50 units/vial**-20°C, Lyophilized**

Sorbitol Dehydrogenase is an essential enzyme involved in polyol metabolism. Sorbitol Dehydrogenase, isolated from microorganisms, is characterized by its high substrate specificity and it degrades D-sorbitol, used as a substrate, into fructose. It is believed that diabetic complications are caused by sorbitol accumulation. The conventional enzymes on the market react with sugars other than sorbitol; however, Sorbitol Dehydrogenase with high substrate specificity enables accurate quantification of sorbitol.

When reacted with typical sugars as substrates including glucose, mannitol, and galactose (at 0.5mol/L concentration) independently or in a mixture, the absorbance did not change, proving high substrate specificity of Sorbitol Dehydrogenase. Sorbitol Dehydrogenase is useful not only in research on aggravation mechanism of complications but also in sorbitol quantification in foods.

For Construction of Diabetes Model**Streptozotocin**

for Biochemistry

Cat. #549-00281 100 mg , #545-00283 500 mg**#543-00284 1 g , #549-00286 5 g****2-10°C, Solid**

Streptozotocin is an antibiotic isolated from *Streptomyces achromogenes* and possesses specific cytotoxicity on pancreatic β-cells. Streptozotocin is widely used for construction of diabetes animal models.

Appearance : Slightly yellowish powder

Solubility : Soluble in water, ethanol, and acetone

Toxicity : Oral LD₅₀ 264 mg/kg (mouse)

Betacellulin, for Research on Diabetes

Betacellulin²⁾ is a member of the EGF family, initially isolated from a mouse pancreatic β -cell carcinoma (insulinoma) cell line β TC-3. The mature form of BTC exists as a glycoprotein composed of 80 amino acid residues processed from a 177-residue membrane-bound precursor. Betacellulin induces insulin expression in AR42J rat pancreatic carcinoma cells^{3,4)} and promotes proliferation of fibroblasts, vascular smooth-muscle cells, and retinal pigment epithelial cells.

Betacellulin, Human, recombinant^{2, 5)}

Cat. #025-14381 10 μ g

-20°C, Lyophilized

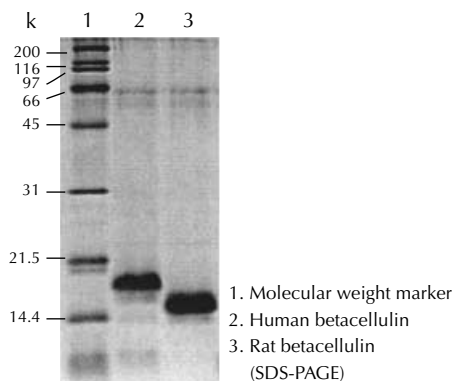
Appearance : Lyophilized from 100 μ g/mL PBS containing 0.1% BSA
 Source : Human betacellulin cDNA expressed in *E. coli*
 Molecular weight : 9.1 k (theoretical value calculated from 80 amino acids)
 Endotoxin : 0.1 ng/ μ g or less

Betacellulin, Rat, recombinant¹⁾

Cat. #022-14391 10 μ g

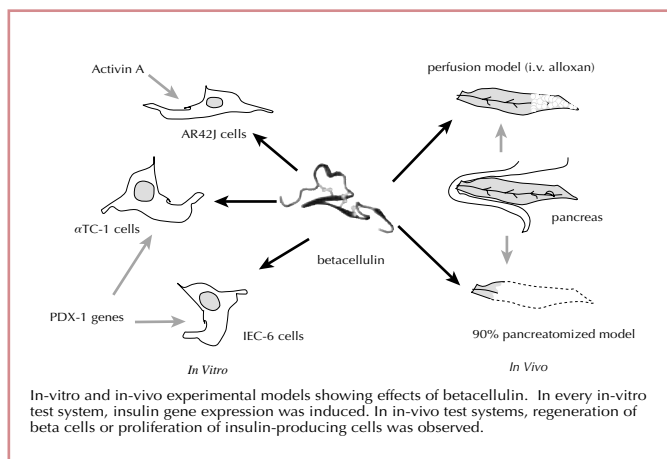
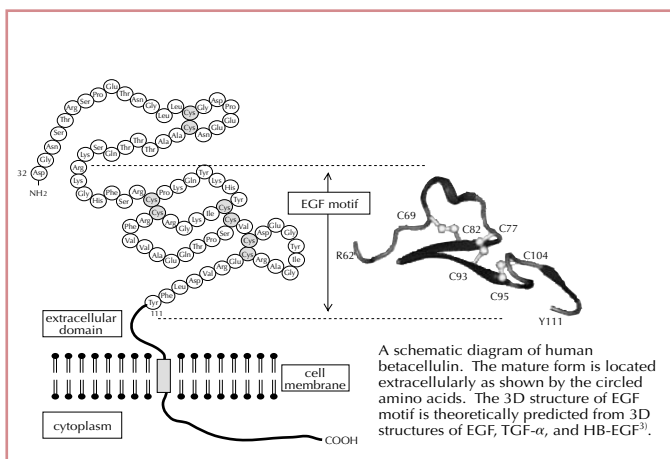
-20°C, Lyophilized

Appearance : Lyophilized from 100 μ g/mL PBS containing 0.1% BSA
 Source : Rat betacellulin cDNA expressed in *E. coli*
 Molecular weight : 9.2 k (theoretical value calculated from 80 amino acids)
 Endotoxin : 0.1 ng/ μ g or less



[References]

- 1) Tada, H., Seno, M., Yamada, H., Sasada, R. and Igarashi, K. : *Biochim. Biophys. Acta*, **1492**, 285 (2000).
- 2) Seno, M., Tada, H., Kosaka, M., Sasada, R., Igarashi, K., Shing, Y., Folkman, J., Ueda, M. and Yamada, H. : *Growth Factors*, **13**, 181 (1996).
- 3) Ishiyama, N., Kanzaki, M., Seno, M., Yamada, H., Kobayashi, I. and Kojima, I. : *Diabetologia*, **41**, 623 (1998).
- 4) Mashima, H., Yamada, S., Tajima, T., Seno, M., Yamada, H., Takeda, J. and Kojima, I. : *Diabetes*, **48**, 304 (1999).
- 5) Tada, H., Sasada, R., Kawaguchi, Y., Kojima, I., Gullick, W.J., Salomon, D.S., Igarashi, K., Seno, M. and Yamada, H. : *J.Cell. Biochem.*, **72**, 423 (1999).
- 6) Mashima, H., Ohnishi, H., Wakabayashi, K., Mine, T., Miyagawa, J., Hanafusa, T., Seno, M., Yamada, H. and Kojima, I. : *J.Clin.Invest.*, **97**, 1647 (1996).



AD-5467

for Biochemistry

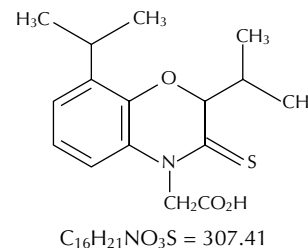
Cat. #017-19421 500 mg

2-10°C, Solid

AD-5467 inhibits aldose reductase (IC₅₀ = 51 nmol/l) and platelet aggregation^{1, 2)}. As sorbitol accumulates excessively in tissues and platelet aggregation is increased in diabetic conditions, AD-5467 is useful in research on preventing and treating diabetic complications.

[References]

- 1) Tawada, H. et al : *Chem. Pharm. Bull.*, **38** (5), 1238 (1990).
- 2) Sugiyama, Y. et al : *Elsevier Science Publishers BV*, 645 (1990).

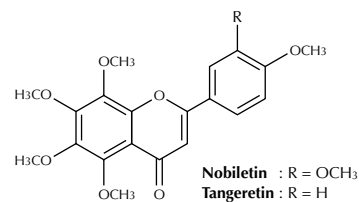


Flavonoids derived from Shekwasha

Nobiletin and tangeretin are polymethoxy flavonoids contained in the juice of Shekwasha, a citrus fruit. These flavonoids are receiving attention for a variety of beneficial effects such as reducing elevation of blood pressure and plasma glucose levels.

[References]

- 1) Rooprai, H. K, et al. : *Neuropathol. Appl. Neurobiol.*, **27**(1), 29 (2001).
- 2) Datla, K. P., et al. : *Neuroreport*, Dec. 4, **12**(17), 3871 (2001).



Wako Cat. #	Description	Package Size	Physical Data	Solubility	Condition
149-07521	Nobiletin, 95.0+% (HPLC)	10 mg	MW : 402.39 (C ₂₁ H ₂₂ O ₈)	Soluble in methanol	-20°C, Solid
208-15671	Tangeretin, 95.0+% (HPLC)	10 mg	MW : 372.37 (C ₂₀ H ₂₀ O ₇) CAS : 481-53-8	Soluble in methanol	-20°C, Solid

[Related Products] Polyphenols

a. Theaflavins, Black Tea Extracts

Wako Cat. #	Description	Package Size	Appearance	Condition
201-15161	Theaflavin, 90+%	1 mg	Lyophilized	-20°C, D/I
202-15191	Theaflavin-3-gallate, 90+%	1 mg	Lyophilized	
204-15271	Theaflavin-3'-gallate, 90+%	1 mg	Lyophilized	
208-15171	Theaflavin-3,3'-digallate, 90+%	1 mg	Lyophilized	

b. Catechins, green tea extracts

Wako Cat. #	Description	Package Size	Appearance	Condition
059-06751	(-)-Epicatechin, from Green Tea, 98+%	10 mg	Lyophilized	2-10°C
055-06753		50 mg		
052-06741	(-)-Epicatechin Gallate, from Green Tea, 98+%	10 mg	Lyophilized	
058-06743		50 mg		
056-06761	(-)-Epigallocatechin, from Green Tea, 98+%	10 mg	Lyophilized	
052-06763		50 mg		
059-05411	(-)-Epigallocatechin Gallate, 90+%	100 mg	Lyophilized	
032-18231	Catechin Mixture, from Green Tea, 85+%	1 g	Lyophilized	

c. Isoflavones, Soybean extracts

Wako Cat. #	Description	Package Size	Appearance	Condition
013-18801	6"-O-Acetyldaidzin, 90+ %	1 mg	Solid	-20°C, D/I
010-18811	6"-O-Acetylgenistin, 90+ %	1 mg	Solid	
010-18791	6"-O-Acetylglycitin, 90+ %	1 mg	Solid	
040-27741	Daidzin, from Soybean, 98+%	10 mg	Lyophilized	2-10°C
046-27743		100 mg		
043-28071	Daidzein, from Soybean, 98+%	10 mg	Lyophilized	
049-28073		100 mg		
077-04691	Glycitin, from Soybean, 98+%	10 mg	Lyophilized	
073-04693		100 mg		
070-04701	Glycitein, from Soybean, 98+%	10 mg	Lyophilized	
076-04703		100 mg		
070-04681	Genistin, from Soybean, 98+%	10 mg	Lyophilized	
076-04683		100 mg		
546-00171	Genistein, 98+%	20 mg	Lyophilized	
093-04771	Isoflavone (Aglycon) Mixture, Crude from Soybean, 95+%	1 g	Lyophilized	
132-13821	6"-O-Malonyldaidzin, 90+ %	1 mg	Solid	-20°C, D/I
136-13841	6"-O-Malonylgenistin, 90+ %	1 mg	Solid	
139-13831	6"-O-Malonylglycitin, 90+ %	1 mg	Solid	

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Wako GmbH homepage



<http://www.wakochemicals.de>

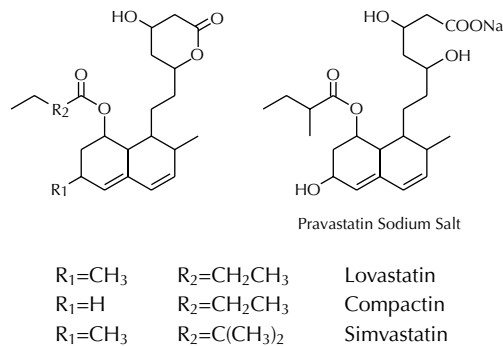
HMG-CoA Reductase Inhibitors

Competitive inhibitors of 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase are the rate limiting enzymes in cholesterol biosynthesis. By blocking the conversion of HMG-CoA to the cholesterol precursor mevalonate, these agents inhibit hepatic synthesis of cholesterol, causing a subsequent stimulation of LDL receptors and an increase in the clearance of LDL and its precursor particles from the circulation.

[Reference]

Singer, I. I., et al., *Proc. Natl. Acad. Sci. USA*, **85**, 5264 (1988). / Endo, A., et al., *FEBS LETTERS*, **72**, 323 (1976).

Wako Cat. #	Description	Package Size	Physical Data	Condition
033-17301	Compactin [ML-236B] 95+% (HPLC)	25 mg	MW : 390.51 (C ₂₃ H ₃₄ O ₅) CAS : 73573-88-3 mp : 152°C LD ₅₀ (mus, orl) 2 gm/kg	2~10°C, Solid
125-04581	Lovastatin* 95+% (HPLC)	25 mg	MW : 404.55 (C ₂₄ H ₃₆ O ₅) CAS : 75330-75-5 mp : 174.5°C LD ₅₀ (mus, orl) 1 gm/kg	2~10°C, Solid
193-12051	Simvastatin 95+% (HPLC)	25 mg	MW : 418.57 (C ₂₅ H ₃₈ O ₅)	2~10°C, Solid
199-12053		100 mg		
162-19821	Pravastatin Sodium Salt 95+% (HPLC)	25 mg	MW : 446.51 (C ₂₃ H ₃₅ NaO ₇)	2~10°C, Solid
168-19823		100 mg		



* : Not available for sale in the US.

Rat Leptin ELISA Kit wako

Cat. #297-57601 96 tests

2~10°C

Leptin, secreted from fatty cells, is known as a hormone controlling body fat by suppression of eating and increase of energy metabolism.

It is reported, however, that expression of leptin gene in fatty tissue and concentration of leptin in blood are at high levels in obese people and model animals of obesity.

[Principle of the assay]

This kit is a sandwich-format of ELISA with two antibodies specific to rat leptin. Monoclonal antibody to leptin is coated on the microplate well, which captures leptin in sample. Following reaction with HRP-conjugated rabbit anti rat leptin antibody, forms HRP labeled antigen-antibody complex on the well, which reports the signal of leptin amount in the sample by chromogenic reaction associated with catalysis of hydrogen peroxide.

Dynamic range :

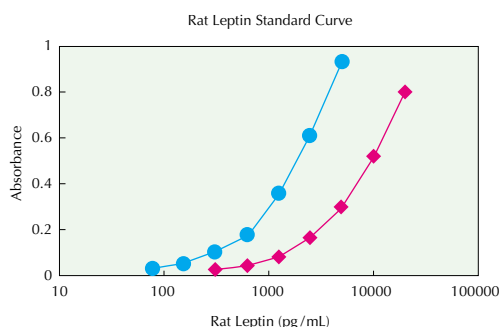
- Samples for serum and plasma : 312.5 ~ 20,000 pg/mL
- Samples for others than serum and plasma : 78.1 ~ 5,000 pg/mL

Cross-reactivity

Specific to rat Leptin, but only slightly cross-reactive to human Leptin.

[Kit Contents (96 tests)]

- | | |
|--|-----------|
| 1. Antibody-coated Microtiter Plate (Anti Rat Leptin, monoclonal antibody) | 1 plate |
| 2. Rat Leptin Standard | 20 ng |
| 3. HRP-conjugated Antibody, rabbit | 6 mL |
| 4. Chromogen (OPD Tablet) | 2 tablets |
| 5. Chromogen Diluent Solution | 24 mL |
| 6. Wash Stock Solution (20 ×) | 50 mL |
| 7. Buffer A | 20 mL |
| 8. Buffer B | 20 mL |
| 9. Stop Solution (1 mol/L H ₂ SO ₄) | 12 mL |
| 10. Adhesive Plate Cover | 2 covers |



TMP-153

for Biochemistry

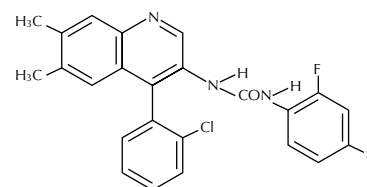
Cat. #207-15641 500 mg

2~10°C, Solid

TMP-153 is an ACAT (acyl-CoA : cholesterol acyltransferase) inhibitor which inhibits cholesterol absorption^{1, 2)}.

[References]

- 1) Tawada, H. et al : *J. Med. Chem.*, **37**, 2079 (1994).
- 2) Sugiyama, Y. et al : *Atherosclerosis*, **113**, 71 (1995).



C₂₄H₁₈ClF₂N₃O = 437.87

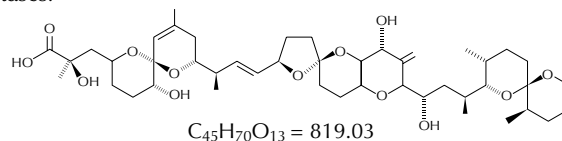
Dinophysistoxin-1, 95.0+% (HPLC)

for Biochemistry

Cat. #042-28661 100 µg

2-10°C, Solid

Dinophysistoxin, isolated from *Halichondria okadai*, is a diarrhetic shellfish toxin with 35-methyl okadaic acid. Dinophysistoxin-1 is a potent Non-TPA type tumor promoter and specifically inhibits protein phosphatases.

TPA : 12-*o*-Tetradecanoyl-phorbol-13-acetate[Reference] Suganuma, M. et al. : *Proc.Natl.Acad.Sci.USA*, **85**, 1768 (1988).**[Related Products]**

Wako Cat. # (Package Size)	Description	Grade	Condition
150-01653 (25µg); 154-01651 (100µg)	Okadaic Acid , 80.0+%	for Biochemistry	2-10°C, Lyophilized
156-02211 (100µg); 152-02213 (500µg)	Okadaic Acid ammonium Salt	for Biochemistry	2-10°C, Lyophilized
032-14451 (100µg); 038-14453 (10µg)	Calyculin A , 98+ %	for Biochemistry	-20°C, Solid

ATP Binding Cassette (ABC) Transporters Specific Inhibitor**Agosterol A**

for Biochemistry

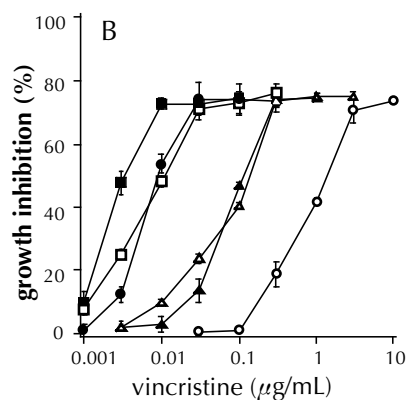
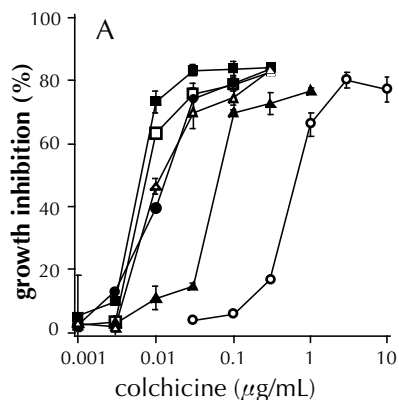
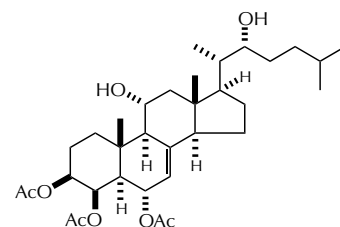
Cat. #016-19511 100 µg

-20°C, Solid

Agosterol A is a steroid compound isolated from a marine sponge of *Spongia* sp. whose habitat is Ago Bay, Mie prefecture in Japan. Agosterol A was found to specifically inhibit two types of ABC transporters, P-glycoprotein and multi-drug resistance-associated protein 1. This enabled Agosterol A to inactivate protein-mediated pump which extrudes chemotherapeutic drugs out of the cell membrane of multi-drug resistant cancer cells. Agosterol A is a promising substance which completely reverses cancer multi-drug resistance.

Source : Marine sponge (*Spongia* sp.)

Appearance : White powder



Reversal of MDR to colchicine in KB-C2 cells (A) and to vincristine in KB-CV60 cells (B) by agosterol A. Sensitivity of each cells was measured in the absence or presence of various concentrations of agosterol A and verapamil. (□) : KB-3-1, (○) : KB-C2 (A) or KB-CV60 (B), (■) : KB-C2 (A) or KB-CV60 (B) + agosterol A (10 µM), (●) : KB-C2 (A) or KB-CV60 (B) + agosterol A (3 µM), (▲) : KB-C2 (A) or KB-CV60 (B) + agosterol A (1 µM), (△) : KB-C2 (A) or KB-CV60 (B) + verapamil (10 µM). Points represent means (±SE) of triplicate determinations.

[References]

- 1) a) Aoki, S.; Yoshioka, Y.; Miyamoto, Y.; Higuchi, K.; Setiawan, A.; Murakami, N.; Chen, Z-S.; Sumizawa, T.; Akiyama, S.; and Kobayashi, M. *Tetrahedron Lett.*, **1998**, 39, 6303-6306.
b) Aoki, S.; Setiawan, A.; Yoshioka, Y.; Higuchi, K.; Fudetani, R.; Chen, Z-S.; Sumizawa, T.; Akiyama, S.; and Kobayashi, M. *Tetrahedron*, **1999**, 55, 13965-13972.
- 2) a) Akiyama, S.; Fojo, A.; Hanover, J. A.; Pastan, I.; and Gottesman, M. M. *Somat. Cell. Mol. Genet.*, **1985**, 11, 117-126.
b) Nagayama, S.; Chen, Z-S.; Kitazono, M.; Takebayashi, Y.; Niwa, K.; Yamada, K.; Tani, A.; Haraguchi, M.; Sumizawa, T.; Furukawa, T.; Aikou, T.; and Akiyama, S. *Cancer Lett.* **1998**, 130, 175-182.

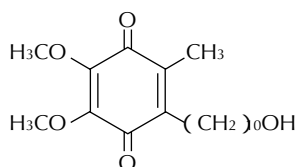
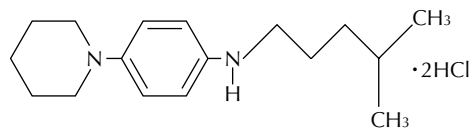
for Research on Cerebral Metabolism

Idebenone

for Biochemistry

Cat. #096-05001 100 mg

2-10°C, Solid


 $C_{19}H_{30}O_5 = 338.44$
Idebenone

 $C_{17}H_{28}N_2 \cdot 2HCl = 333.34$
T-43362
T-43362

for Biochemistry

Cat. #203-15741 50 mg

2-10°C, Solid

Idebenone is known to act on the central nervous system and ameliorate cerebral apoplexy, cerebral ischemia with affective disorder, tetraplegia, and impaired passive avoidance response.

T-43362 has a central antioxidant effect with intracerebral aminergic actions. T-43362 exhibits a potent protective effect on glutamate-induced cells in N18-RE-105 cells and an inhibitory effect on production of lipid peroxide.

[Reference]

1) p.282, Pharmaceutical Handbook, the 5th edition, edited by Osaka Pharmaceutical Association.

Ras Inhibitory Peptide

for Biochemistry

Cat. #182-01731 1 mg

-20°C, Lyophilized

The peptide sequence corresponds to amino acid residues 1149-1158 of the guanine nucleotide-releasing factor hSos1, which is essential for the control of Ras activity. Blocks the binding of hSos1 to human Grb2, a protein that binds to activated receptor tyrosine kinases. This finding indicates that the Grb2/hSos1 complex links signal transduction by Ras to receptor tyrosine kinases.

Geranylgeranylpyrophosphate Triammonium Salt Solution

for Biochemistry

Cat. #076-04781 200 μ g

-20°C, D/I, Liquid

Geranylgeranylation is catalyzed by geranylgeranyl transferase which modifies the C-terminal cysteine residue of protein with this product in post-translational modification. Prenylated protein generated by geranylgeranylation plays a critical role in signal transduction and can be applied in the development of inhibitors using this product as a substrate.

Farnesylpyrophosphate Triammonium Salt Solution

for Biochemistry

Cat. #065-04211 200 μ g

-20°C, D/I, Liquid

Potently and specifically inhibits methyl esterification of farnesylated proteins such as the γ subunit of transducin (70 % at 10 μ M)¹⁾. Does not act as a substrate for methyl transferase. The product is not sterile.

[Reference]

1) E. W. Tan et al. *J. Biol. Chem.*, **266**, 10719 (1991).

Expression and tissue localization of MMPs (Matrix metalloproteinases)

MMP *in situ* Zymo-Film

for Biochemistry

Cat. #295-58001 50 films
~25°C

MMP-PT *in situ* Zymo-Film

for Biochemistry

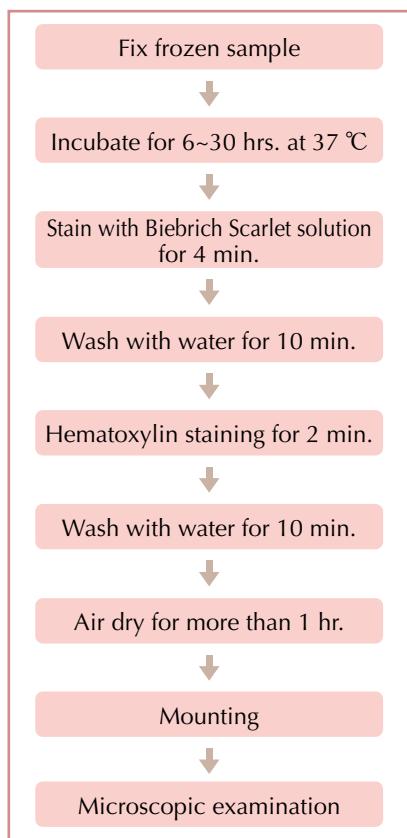
Cat. #291-58101 50 films
~25°C

MMP *in situ* Zymo-Film was developed for observation of the enzyme activity of MMPs in tissue specimens, which are known as an indicator of carcinogenesis and other physiological conditions. Zymo-Film is composed of a layer of special gelatin at 7 μm in thickness on a polyester base. Furthermore, the layer of MMP-PT contains 1, 10-phenanthroline as a MMP inhibitor. Therefore, one can distinguish MMP activity from the other proteinase activity in the tissue.

[Application]

Zymo-Film is used to examine the localization of matrix metalloproteinase (MMP), trypsin, and other such enzyme activity in frozen tissue and cellular specimen.

[Protocol]



[Principle of the method]

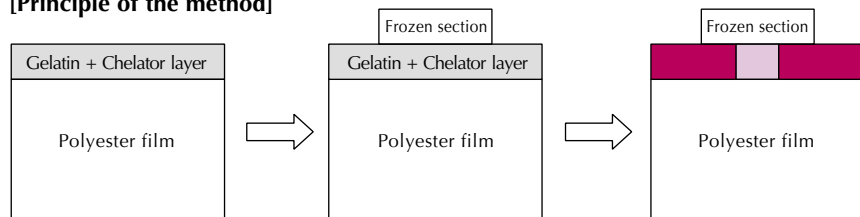


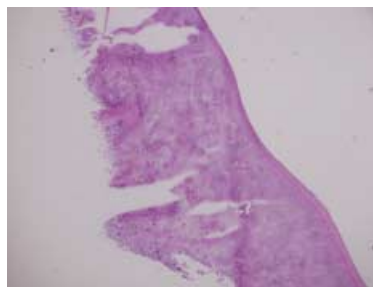
Fig. 1
Zymo-Film is composed of a 7 μm-thick layer of special gelatin on a polyester base. The layer contains 1, 10-phenanthroline as a MMP inhibitor.

Fig. 2
A frozen section is placed on the film, and incubated at 37 °C for 6~30 hrs, depending on the specimen.

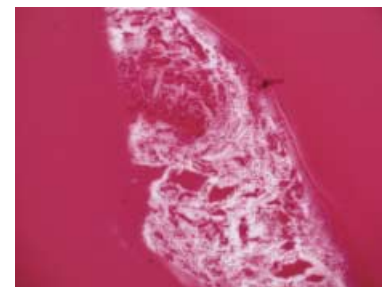
Fig. 3
During incubation, gelatin on the film is digested by protease localizing in the tissue. Therefore, the film stains, leaving the areas where gelatin is digested with protease as a light-colored area by an appropriate protein staining dye such as Biebrich Scarlet.

[An example of detection]

murine small intestine



HE staining



MMP *in situ* Zymo-Film
Biebrich Scarlet/Hematoxylin staining

[Related Products]

Wako Cat. #	Description	Grade	Package Size
021-14861	Biebrich Scarlet Stain Solution	for Pathological Investigation	200 mL
131-09665	Mayer's Hematoxylin Solution	for Pathological Investigation	500 mL
015-02192	Amido Black 10B	for Pathological Investigation	25 g

SLP-HS Single Reagent Set

Cat. #293-58301 20 tests

2-10°C

The hemolymph of the silkworm *Bombyx mori* contains a self-defense mechanism termed the "prophenoloxidase cascade system". Upon invasion of foreign material such as bacteria and fungi, the cascade system participates in melanin formation observed in the body fluid of insects to protect them from the invader's attack. The system is triggered by peptidoglycan (PGN) from bacteria and (1 → 3)-β-D-glucan (β-glucan) from fungi and yeast, and consequently, prophenoloxidase in the system is activated. It is also postulated that serial serine proteases are involved in the cascade system, but little has been elucidated on this point.

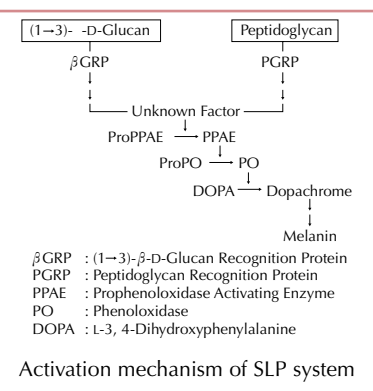
SLP (Silkworm Larvae Plasma) is prepared sterile and contains all of the factors participating in the activation of the cascade system. The system, containing L-3, 4-dihydroxyphenylalanine (DOPA) as a phenoloxidase substrate, is triggered by PGN and/or β-glucan is widely distributed in the cell wall of a variety of fungi. Therefore, SLP enables one to quantify and/or detect contamination by bacterial and fungal material by measuring the development of melanin formation in the assay.

[Features]

1. High sensitive detection of bacteria and fungi by measuring PGN and β-glucan
2. Accurate and sensitive quantification of PGN and β-glucan by use of Toxinometer (Wako Pure Chemical Industries Ltd., Osaka, Japan)
3. Visual estimation of PGN and β-glucan by color development without any special apparatus
4. This product is stable at 2-10°C for at least 24 months

[Kit Contents]

1. SLP-HS(Silkworm Larvae Plasma, High Sensitive) for 0.2 mL × 20 vials
Sensitivity : Either 10pg/mL of PGN or 1pg/mL of β-glucan can be detected with Toxinometer at 30°C in 120 minutes.
2. SLP-Diluent 1.0 mL × 20 vials
3. Standard (Digested Peptidoglycan from *S. aureus*) 0.5 mL × 1 vial



right : Peptidoglycan 10pg
left : NC

[References]

- 1) Ashida, M. and Yamazaki, H. I. : "Molting and Metamorphosis" ed. by Ohnishi, E. and Ishizaki, H., Japan Sci. Soc. Press, Tokyo/Springer-Verlag, Berlin, p.239 (1990).
- 2) Tsuchiya, M., Asahi, N., et al. : Detection of peptidoglycan and β-glucan with silkworm larvae plasma test. FEMS Immunol. Med. Microbiol., 15, 129-134 (1996).

Wako Cat. #	Description	Grade	Package Size
293-58301	SLP-HS Single Reagent Set	for Microorganism Detection	20 Tests

[Related Products]

Wako Cat. #	Description	Grade	Package Size
297-51501	SLP Reagent Set [Kit contents (approx. 60 tests for a microplate assay)] 1) SLP, lyophilized 1 vial 2) Substrate, lyophilized 1 vial 3) Diluent 1 vial	for Microorganism Detection	for 3 mL
162-18101	Peptidoglycan, from <i>Micrococcus luteus</i>	for Biochemistry	2 mL (1 μg/mL)
030-09903	Curdlan [(1 → 3)-β-D-glucan]	for Biochemistry	1 g
035-13601	CM-Curdlan	for Biochemistry	1 g
293-26551	Limulus Test Tube-S (12 × 75 mm, Endotoxin free)	for Endotoxin Assay	10 × 10 vials
293-28251	Aluminium Cap-S (14.7 × 18 mm, Endotoxin free)	for Endotoxin Assay	10 × 10 pieces
294-31351	Bio-Clean tips Wako 1000	-	100 tips
290-31451	Bio-Clean tips Wako 200	-	100 tips
298-32851	Bio-Clean tips Wako Extend S	-	100 tips

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	4	6 ⁿ -O-Acetylgeninistin		4	Glycitin	
	4	6 ⁿ -O-Acetylglycitin		H	5	HMG-CoA Reductase Inhibitors
	5	Acyl-CoA Inhibito (TMP-153)		I	7	Idebenone
	3	AD-5467		4	Isoflavone (Aglycon) Mixture, from Soybean	
	6	Agosterol A		L	5	Rat Leptin ELISA Kit <i>wako</i>
	2	Aldose Reductase, Human, recombinant		9	Limulus Test Tube-S (12 × 75mm, Endotoxin-free)	
	2	Aldose Reductase Inhibitor		5	Lovastatin	
	9	Aluminium Cap-S (14.7 × 18mm, Endotoxin-free)		M	4	6 ⁿ -O-Malonyldaidzin
	8	Amido Black 10B		4	6 ⁿ -O-Malonylgeninistin	
	6	ATP Binding Cassette Transporter Specific Inhibitor		4	6 ⁿ -O-Malonylglycitin	
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9		Bio-Clean tips Wako Extend S	O	6	Okadaic Acid	
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			5	TMP-153		

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Wako Pure Chemical Industries, Ltd.

1-2, Doshomachi 3-Chome
Chuo-Ku, Osaka 540-8605, Japan
Telephone : +81-6-6203-3741
Facsimile : +81-6-6201-5964
Online Cat. : <http://search.wako-chem.com>

Wako Chemicals USA, Inc.

1600 Bellwood Road
Richmond, VA 23237, U.S.A.
Toll-Free (U.S. only) : +1-877-714-1920
Telephone : +1-804-714-1920
Facsimile : +1-804-271-7791
<http://www.wakousa.com>

Wako Chemicals GmbH

Nissanstraße 2, D-41468
Neuss, Germany
Telephone : +49-(0)2131-311-0
Facsimile : +49-(0)2131-311100
E-mail : biochem@wako-chemicals.de