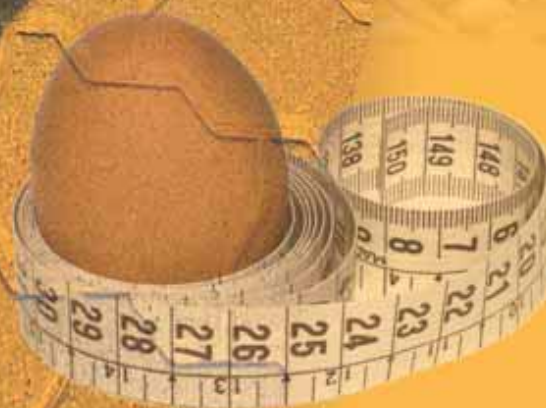


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1 Kit Index

	Description	Wako Cat. #	[Manufacturer's product #]	Assay Range	Applicability
1-a	Adiponectin (page # 4)				
	Adiponectin, Mouse/Rat High Molecular Weight Adiponectin ELISA Kit *	634-13071 (96 wells)	[AKMAN-011]	3.13 ~ 200 ng/mL	serum, plasma
1-b	A/G ratio (Ratio of Albumin to Globulin) (page # 4)				
	LabAssay™ A/G (BCG method, Biuret method)	292-63901 (1,000 tests)		~ 6 g/dL (Albumin) ~ 12 g/dL (total protein) (as reference values)	serum (mouse, human)
1-c	Albumin (page # 5)				
	Mouse Albumin ELISA Kit	634-04301 (96 tests)	[AKRAL-121]	50 ~ 1,000 ng/mL	serum, plasma, urine
	Rat Albumin ELISA Kit	631-04311 (96 tests)	[AKRAL-120]	50 ~ 1,000 ng/mL	serum, plasma, urine
	Panatest® Rat Albumin (EIA method)	305-04661 (96 tests)	[PRD51]	16 ~ 1,000 ng/mL	urine
	Panatest® Canine Albumin (EIA method)	304-15501 (96 tests)	[PCJ131]	31 ~ 2,000 ng/mL	urine
1-d	Alkaline Phosphatase (page # 6)				
	LabAssay™ ALP	291-58601 (900 tests)		above 0.06 mmmol/L	
1-e	Apo B-48 (page # 6)				
	Human Apo B-48 ELISA Kit *	637-10641 (96 tests)	[AKHB48]	2.5 ~ 160 ng/mL	serum, plasma, urine
1-f	CETP (page # 7)				
	Human CETP ELISA Kit Wako	290-65401 (72 tests)		0 ~ 4.8 µg/mL	serum
1-g	C-Peptide (page # 8)				
	Rat C-Peptide ELISA Kit Wako	295-57401 (96 tests)		1.56 ~ 50 ng/mL	serum, plasma, culture media
	Rat C-peptide ELISA Kit (U type)	639-07271 (96 tests)	[AKRCP-030]	30 ~ 3,000 pg/mL	serum, plasma
	Mouse C-peptide ELISA Kit (U type)	631-07231 (96 tests)	[AKRCP-031]	30 ~ 3,000 pg/mL	serum, plasma, urine
1-h	Creatinine (page # 9)				
	LabAssay™ Creatinine (Jaffé method)	290-65901 (500 tests)		See the standard curve	serum, urine (mouse)
1-i	Glucagon (page # 9)				
	Rat Glucagon ELISA Kit Wako	297-57101 (96 tests)		50 ~ 10,000 pg/mL	serum, plasma, culture supernatant (rat, mouse, human)
1-j	GLP-1 (page # 10)				
	Rat GLP-1 ELISA Kit Wako	291-59201 (96 tests)		206 ~ 50,000 pg/mL	plasma (rat, mouse, human)
1-k	GLP-2 (page # 10)				
	Rat GLP-2 ELISA Kit Wako	292-60601 (96 tests)		0.137 ~ 100 ng/mL	serum, plasma
1-l	Glucose (page # 11)				
	LabAssay™ Glucose (Mutarotase-GOD method)	298-65701 (1,000 tests)		0 ~ 500 mg/dL	serum, urine
1-m	Leptin (page # 11)				
	Rat Leptin ELISA Kit Wako	297-57601 (96 tests)		78.1 ~ 5,000 pg/mL (cultured media), 312.5 ~ 20,000 pg/mL (serum/plasma)	serum, plasma, culture supernatant
1-n	Insulin (page # 12)				
	Determination of Insulin from animals in normal state				
	Mouse Insulin ELISA Kit (TMB)	634-01481 (96 tests)	[AKRIN-011T]	156 ~ 10,000 pg/mL	serum, plasma
	Rat Insulin ELISA Kit (TMB)	637-01471 (96 tests)	[AKRIN-010T]	156 ~ 10,000 pg/mL	serum, plasma
	Dog Insulin ELISA Kit	633-01451 (96 tests)	[AKRIN-012T]	188 ~ 12,000 pg/mL	serum, plasma
	Porcine Insulin ELISA Kit (TMB)	630-01461 (96 tests)	[AKRIN-013T]	188 ~ 12,000 pg/mL	serum, plasma
	Hamster Insulin Standard	630-07103 (5 × 250 µL)	[ASIN-001]	Hamster or Rabbit insulin can be measured with Rat Insulin ELISA Kit (TMB)	serum, plasma
	Rabbit Insulin Standard	637-07113 (5 × 250 µL)	[ASIN-003]		
	Determination of high level of insulin in samples such as transgenic mouse and Min-6				
	Mouse Insulin ELISA Kit (H-type)	630-10371 (96 tests)	[AKRIN-011H]	0.5 ~ 100 ng/mL	serum, plasma, cultured tissue, media
	Rat Insulin ELISA Kit (H-type)	633-10621 (96 tests)	[AKRIN-010H]	0.5 ~ 100 ng/mL	
	Specific determination of Insuline				
	Mouse Insulin ELISA Kit (S-type)	636-07281 (96 tests)	[AKRIN-011S]	78 ~ 5,000 pg/mL	serum, plasma
	Rat Insulin ELISA Kit (S-type)	637-07191 (96 tests)	[AKRIN-010S]	100 ~ 10,000 pg/mL	
1-o	Triglyceride (page # 14)				
	LabAssay™ Triglyceride (GPO · DAOS method)	290-63701 (1,000 tests)		See the standard curve	serum (mouse, human)
1-p	Uric Acid (page # 14)				
	LabAssay™ Uric Acid (Uricase · TOOS method)	292-64001 (1,300 tests)		See the standard curve	serum (mouse, human)

*: Available in USA only.

1-a Adiponectin (HMW)

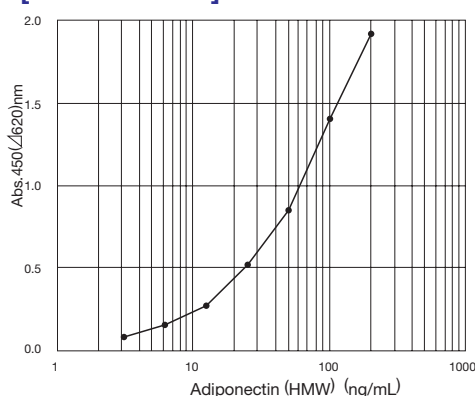
- manufactured by Shibayagi -

[Features]

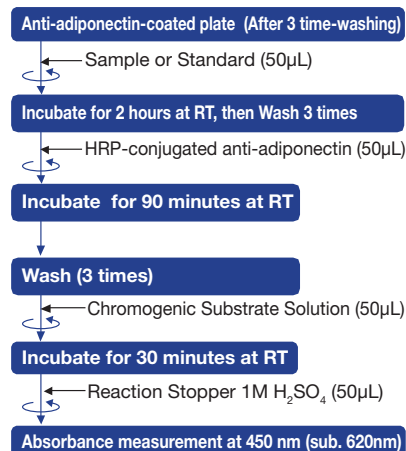
1. Rapid assay from mouse / rat serum or plasma (total reaction time: 4 hours)
2. Ready-to-Use liquid reagents, for determination of high molecular weight adiponectin
3. A small sample volume (10 μ L serum/plasma with 50 $\times$ dilution)
4. An ecologically excellent preservative is used.
5. Excellent precision and reproducibility



[Standard Curve]



[Measurement Procedure]



⤵ : Shake; RT : 20~25°C

For further information, please visit <http://www.shibayagi.co.jp/index-E.htm>

Description	Catalog No. (Pkg. Size)	Dynamic Range	Note
Mouse/Rat High Molecular Weight Adiponectin ELISA Kit *	634-13071 (96 tests) [AKMAN-011]	3.13 ~ 200 ng/mL	Keep at 2~8°C
[Kit Contents]			
1. Anti-adiponectin-coated plate	96 wells (8 $\times$ 12)/plate	4. HRP-conjugated anti-adiponectin	100 μ L
2. Standard adiponectin solution (2,000 ng/mL)	200 μ L	5. Chromogenic substrate reagent (TMB)	12 mL
3. Buffer Solution	60 mL	6. Reaction Stopper (1M H ₂ SO ₄)	12 mL
		7. Concentrated washing buffer (10 $\times$)	100 mL

[] : Shibayagi Product No.

* : Available in USA, only

1-b A/G ratio (Ratio of Albumin to Globulin)

Blood serum contains two major protein groups: albumin and globulin. The ratio of albumin to globulin (A/G ratio) is calculated from values obtained by direct measurement of total protein and albumin. It represents the relative amounts of albumin and globulins.

This kit is able to measure total protein in mouse and human serum by the Biuret method and albumin by the BCG (Bromocresol green) method, and furthermore to calculate A/G ratio.

[Performance]

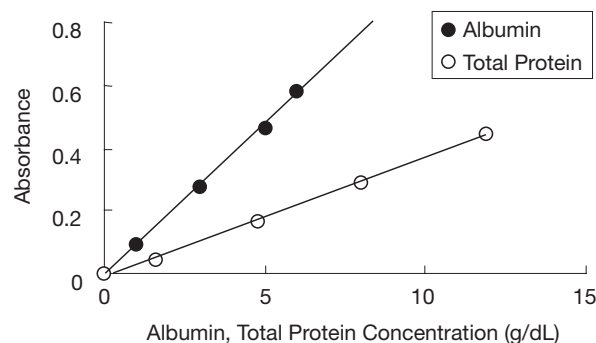
Albumin

- (1) Sensitivity (Absorbance):
Purified water: 0.120 ~ 0.220 / Std Serum (5.0 g/dL Alb): 0.480 ~ 0.810
- (2) Specificity (albumin concentration):
a known concentration of control serum: within $\pm$ 12%

Total Protein

- (1) Sensitivity (Absorbance):
Purified water: 0.050 ~ 0.100 / Std Serum (8.0g/dL Total protein): 0.300 ~ 0.500
- (2) Specificity (protein concentration)
a known concentration of control serum: within $\pm$ 10%

[Standard Curve]



[References]

1. Doumas, B. T., Watson, W. A. and Biggs, H. G. : "Albumin standards and the measurement of serum albumin with bromocresol green", *Clin. Chem. Acta.*, **31**, 87 (1971).
2. Gornall, A. G., Bardawill, C. J. and David, M. M. : "Determination of serum proteins by means of the biuret reaction", *J. Biol. Chem.*, **177**, 751 (1949).

Description	Catalog No. (Pkg. Size)	Storage Condition	Dynamic Range (reference value)
LabAssay™ A/G (BCG method, Biuret method)	292-63901 (1,000 tests)	Keep at 2 ~ 10°C	0.10 ~ 6 g/dL (Albumin) 0.40~12 g/dL (total protein)
[Kit Contents]			
1. Buffer	2 vials $\times$ 150 mL	3. Glucose Standard I (200 mg/dL Glucose)	1 vial $\times$ 10 mL
2. Chromogen Reagent	2 vials $\times$ for 150 mL	4. Glucose Standard II (500 mg/dL Glucose)	1 vial $\times$ 10 mL

1-c Albumin

Albumin manufactured by Shibayagi

[Features]

1. High sensitive albumin measurement
2. With a small volume of sample (5 μ L)
3. With excellent reproducibility
4. Rapid assay (2.5 hours)

[Measurement Procedure]

Anti-albumin-coated plate (After 3 time-washing)

- Buffer Solution (50 μ L)
- Sample or Standard (5 μ L)

Incubate for 1 hour at RT, then Wash 3 times

HRP-conjugated antibody (50 μ L)

Incubate for 1 hour at RT

Wash (3 times)

Chromogenic Substrate Solution (50 μ L)

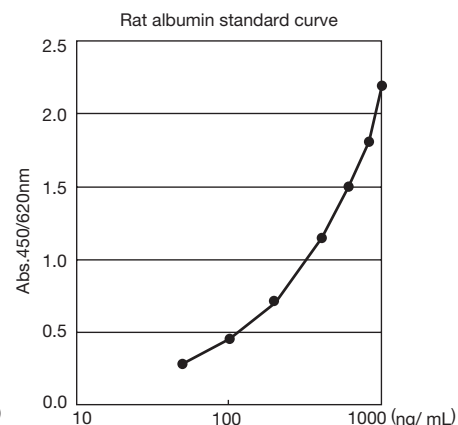
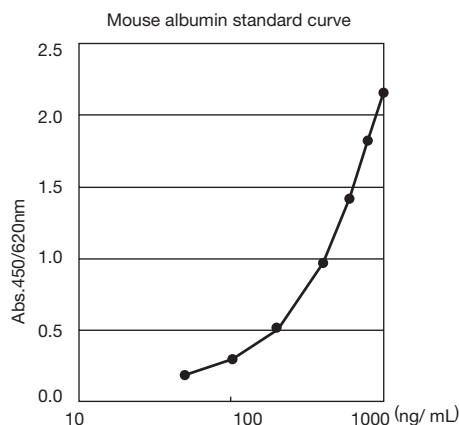
Incubate for 20 minutes at RT

Reaction Stopper (50 μ L)

Absorbance measurement at 450 nm (sub. 620nm)

Shake; RT: 20~25°C

[Standard Curve]

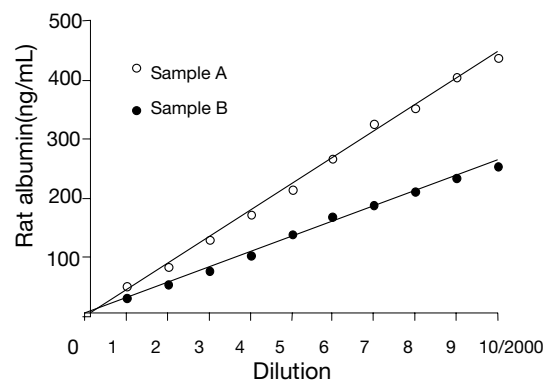
For further information, please visit <http://www.shibayagi.co.jp/index-E.htm>

Description	Catalog No. (Pkg. Size)	Dynamic Range	Note
Mouse Albumin ELISA Kit	634-04301 (96 tests) [AKRAL-121]	50 ~ 1,000 ng/mL	Keep at 2~8°C
Rat Albumin ELISA Kit	631-04311 (96 tests) [AKRAL-120]	50 ~ 1,000 ng/mL	
[Kit Contents]		4. HRP-conjugated antibody	100 μ L
1. Anti-albumin-coated plate	96 wells (8 $\times$ 12) /plate	5. Chromogenic substrate reagent (TMB)	12 mL
2. Standard albumin solution (10 μ g/mL)	150 μ L	6. Reaction Stopper (1M H ₂ SO ₄)	12 mL
3. Buffer Solution	60 mL	7. Concentrated washing buffer (10 $\times$)	100 mL

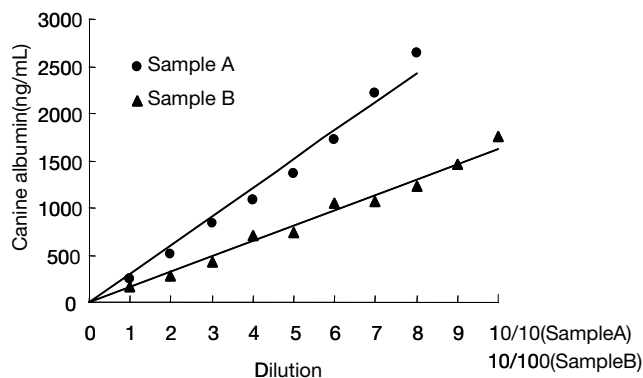
[]: Shibayagi Product No.

Albumin manufactured by Panapharm

Since urinary albumin increase is associated with release of serum protein due to glomerular basement membrane lesions, this becomes the indication for glomerular inflammation, renal amyloidosis and diabetic glomerular nephropathy. This reagent can detect micro doses of albumin, which can not be detected by qualitative testing paper for urinary protein, with high sensitivity by EIA method which incorporates specific antibody to albumin.



Linearity with dilution can be obtained within the range of 200~2,000-fold dilution of urine samples of SD rats (at age of 7 weeks, male).



Linearity with dilution can be obtained within the range of 1~100-fold dilution of urine samples of canine (beagle, male, at age of 6 months).

Description	Wako Cat. # (Pkg. Size) [Panapharm #]	Dynamic Range	Note
Pana-test Rat Albumin [EIA method]	305-04661 (96 tests) [PRD051]	16 ~ 1,000 ng/mL	Keep at 2~8°C
Pana-test Canine Albumin [EIA method]	304-15501 (96 tests) [PCJ131]	31 ~ 2,000 ng/mL	
[Kit Contents]		5. Chromogen Solution	1 vial
1. ELISA plate (Anti albumin antibody-coated plate)	1 plate	6. Substrate solution	20 mL
2. Standard albumin (lyophilized)	1 vial	7. Wash buffer concentrate (10 $\times$)	40 mL
3. Sample diluent concentrate (5 $\times$)	40 mL	8. Stop solution 15 mL (1 mol/L sulfuric acid)	15 mL
4. Enzyme-labeled antigen (POD-conjugated albumin)	1 vial		

1-d Alkaline Phosphatase

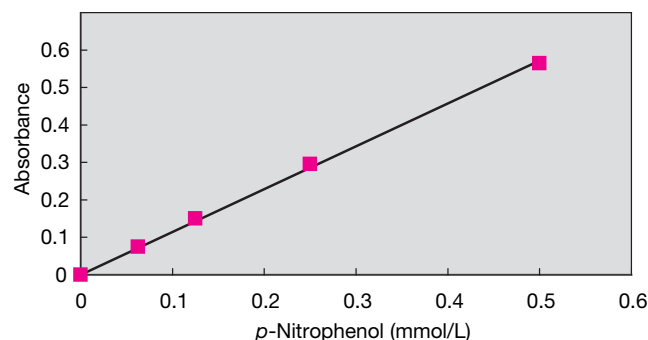
Alkaline Phosphatase (ALP) is distributed in a variety of tissues such as liver, bone and small intestine in animals. The change of the enzyme activity in tissues is an important hallmark for physiological phenomena as osteogenesis and so on.

This kit is for Alkaline Phosphatase assay in a simultaneous multi-sample assay format with a microplate using *p*-Nitrophenylphosphate as a substrate.

[Reference]

Yamamoto, M., Takahashi, Y., Tabata, Y.: "Controlled release by biodegradable hydrogels enhances the ectopic bone formation of bone morphogenetic protein", *Biomaterials*, **24** (24), 4375-83 (2003).

[Standard curve]



Description	Wako Cat. # (Pkg. Size)	Dynamic Range	Note
LabAssay™ ALP (Alkaline Phosphatase activity assay with <i>p</i> -Nitrophenylphosphate as a substrate)	291-58601 (900 tests)	above 0.06 mmol/L	Keep at 2~10°C
[Kit Contents]			
1. Substrate Tablet	20 tablets	3. Stop Solution (0.2 mol/L Sodium Hydroxide Solution)	1 vial × 100 mL
2. Buffer Solution (pH 9.8)	1 vial × 100 mL	4. Standard Solution (0.5 mmol/L <i>p</i> -Nitrophenol Solution)	1 vial × 10 mL

1-e Apo B-48 Measurement

- manufactured by Shibayagi -

Apolipoprotein B-48 contained in blood can be accurately, quickly and conveniently assayed with this kit manufactured by Shibayagi. The apo B-48 assay method and/or the apo B-48 assay kit are very useful for research for apo B-48-associated disease and evaluation of the efficacy of an ingredient in a remedy for hyperlipemia and a component in a functional food capable of elevating or lowering blood apo B-48 level.

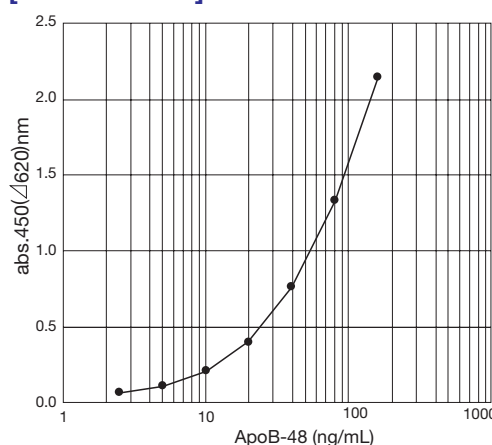
[Features]

1. Rapid assay (total reaction time: 2 hours 50 minutes)
2. A small sample volume
3. An ecologically excellent preservative is used.
4. Excellent precision and reproducibility.

[Cross-reactivity]

Cross-reaction to human apo B-100 is less than lower detection limit.

[Standard curve]



[Measurement Procedure]

1. Antibody-coated plate (After 4 time-washing)
2. diluted sample / standard Solution (50μL)
3. Incubate for 1 hour at RT, then Wash 4 times
4. biotin-conjugated antibody (50μL)
5. Incubate for 1 hour at RT, then Wash (4x)
6. HRP-conjugated avidin solution (50μL)
7. Incubate for 30 minutes at RT, then Wash (4x)
8. Chromogenic substrate Solution (50μL)
9. Incubate for 20 minutes at RT
10. Reaction Stopper (50μL)
11. Absorbance measurement at 450 nm (sub. 620nm)

↻: Shake; RT: 20~25°C

For further information, please visit <http://www.shibayagi.co.jp/index-E.htm>

Description	Wako Cat. # (Pkg. Size)	Dynamic Range	Note
Human Apo B-48 ELISA Kit *	637-10641 (96 tests) [AKHB48]	2.5 ~ 160 ng/mL	Keep at 2~8°C
[Kit Contents]			
1. Anti-apo B-48-coated plate	96 wells (8 × 12) /plate	5. Peroxidase-conjugated streptavidin	100 μL
2. Standard human apo B-48 (frozen-dried)	128 ng	6. Chromogenic substrate reagent (TMB)	12 mL
3. Buffer Solution	60 mL	7. Reaction Stopper (1M H ₂ SO ₄)	12 mL
4. Biotin-conjugated anti-apo B-48 antibody	100 μL	8. Concentrated washing buffer (10 ×)	100 mL

*: Available in USA, only

1-f CETP Measurement

Cholesteryl ester transfer protein (CETP) is one of the lipid transfer proteins, which mediates the transfer of cholesteryl ester (CE), triglyceride (TG) and phospholipids between lipoproteins.¹⁾ CETP facilitates the transfer of CE from high-density lipoprotein (HDL) to very-low-density lipoprotein (VLDL) and low-density lipoprotein (LDL), and also the transfer of TG from VLDL and LDL to HDL.²⁾ The clinical significance of CETP has been controversial.³⁻⁷⁾ Wako supplies two kind of CETP monoclonal antibody as well as the ELISA Kit, which is based on the sandwich enzyme immunoassay measures CETP mass.

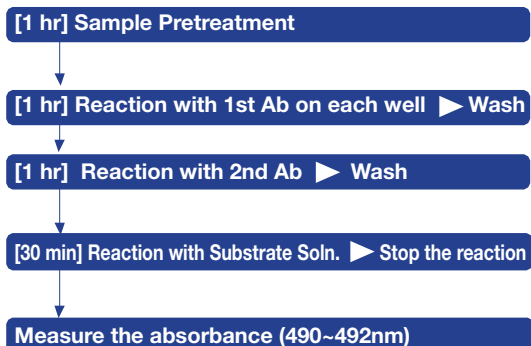
[Features]

1. Easy determination of human serum CETP
2. High linearity by 4.8 µg/mL
3. 4-hour procedure

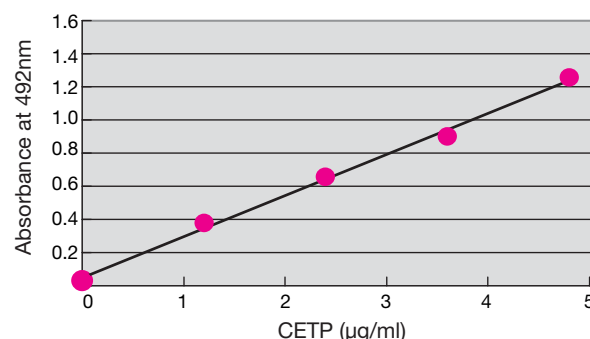
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- 1) Tall, A. R.: "Plasma lipid transfer proteins.", *J. Lipid Res.*, **27**, 361-7 (1986).
- 2) Morton, R. E. and Zilversmit, D.B.: "Inter-relationship of lipids transferred by the lipid-transfer protein isolated from human lipoprotein-deficient plasma", *J. Biol. Chem.*, **258**, 11751-7 (1983).
- 3) Fielding, C. J. and Havel, R. J.: "Cholesteryl ester transfer protein: friend or foe?", *J. Clin. Invest.*, **97**, 2687 (1996).
- 4) Inazu, A., Brown, M. L., Hesler, C. B., Agellon, L. B., Koizumi, J., Tanaka, K., Maruham, Y., Mabuchi, H. and Tall, A. R.: "Increased high-density lipoprotein levels caused by a common cholesteryl-ester transfer protein gene mutation", *N. Engl. J. Med.*, **323**, 1234-8 (1990).
- 5) Tall, A. R.: "Plasma cholesteryl ester transfer protein", *J. Lipid Res.*, **34**, 1255-74 (1993).
- 6) Zhong, S., Sharp, D. S., Grove, J. S., Bruce, C., Yano, K., Curb, J. D. and Tall, A. R.: "Increased coronary heart disease in Japanese-American men with mutation in the cholesteryl ester transfer protein gene despite increased HDL levels", *J. Clin. Invest.*, **97**, 2917-23 (1996).
- 7) Marotti, K. R., Castle, C. K., Boyle, T. P., Lin, A. H., Murray, R. W. and Melchior, G. W.: "Severe atherosclerosis in transgenic mice expressing simian cholesteryl ester transfer protein", *Nature*, **364**, 73 (1993).

[Measurement Procedure]



[Standard Curve]



Description	Catalog No. (Pkg. Size)	Dynamic Range	Note
Human CETP ELISA Kit Wako	290-65401 (72 tests)	0 ~ 4.8 µg/mL	Keep and ship at 2~10°C
[Kit Contents]			
1. Anti-apo B-48-coated plate	96 wells (8 × 12) /plate	5. Peroxidase-conjugated streptavidin	100 µL/vial
2. Standard human apo B-48 (frozen-dired)	128 ng/vial	6. Chromogenic substrate reagent (TMB)	12 mL/bottle
3. Buffer Solution	60 mL/bottle	7. Reaction Stopper (1M H ₂ SO ₄)	12 mL/bottle
4. Biotin-conjugated anti-apo B-48 antibody	100 µL/vial	8. Concentrated washing buffer (10 ×)	100 mL/bottle

Related Antibodies	Wako Catalog No.	Concentration	Note
Anti Human CETP, Monoclonal Antibody (Clone #CETP-4)	010-21241 (100 µg)	1 mg/mL	<for Immunochemistry> Appearance: prepared in PBS containing 0.05% sodium azide. Specificity: Specific to human CETP Antibody Titer: 1:10,000+ (ELISA)
This monoclonal antibody (Clone #CETP-4) inhibits cholesteryl ester transfer protein (CETP) activity. The 10 µg/mL antibody solution can entirely inhibit the CETP activity in the same quantity of normal serum.			
Anti Human CETP, Monoclonal Antibody (Clone #CM5,a-27)	017-21251 (100 µg)	1 mg/mL	
This monoclonal antibody, specifically recognizes SDS-treated CETP, is applicable to immunostaining on nitrocellulose membrane.			

1-g C-Peptide

C-Peptide

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.

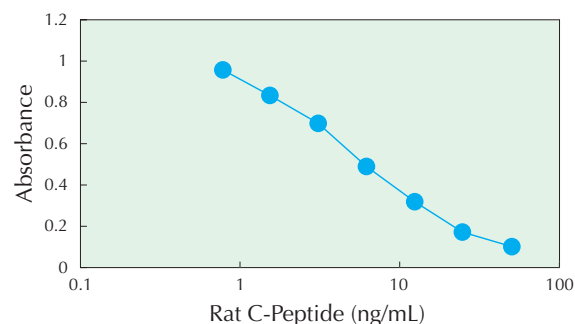
[Principle]

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 peroxides (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.

[Cross-reactivity]

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

[Standard curve]



Description	Catalog No. (Pkg. Size)	Dynamic Range	Note
Rat C-peptide ELISA Kit	295-57401 (96 tests)	1.56~50 ng/mL	Keep and ship at 2~10°C
[Kit Contents]			
1. Antibody-coated Microtiter Plate	1 plate	6. Chromogen (OPD Tablet)	2 tablets
2. Rat C-Peptide Standard	50 ng	7. Chromogen Diluent Solution	24 mL
3. Biotinylated Rat C-Peptide	for 8 mL	8. Wash Stock Solution (20 ×)	50 mL
4. Anti Rat C-Peptide	12 mL	9. Buffer	35 mL
5. HRP-conjugated Streptavidin	12 mL	10. Stop Solution (1 mol/L H ₂ SO ₄)	12 mL
		11. Adhesive Plate Cover	3 covers

C-Peptide High Sensitive manufactured by Shibayagi

[Features]

1. Rapid Assay (5 hours)
2. Small sample volume (10 μ L).
3. Ready-to-Use liquid reagents
4. Excellent precision and reproducibility.

[Cross-reactivity]

Mouse ELISA $\Rightarrow$ Reacts to mouse (100%); rat (90%) and human (95%)
 Rat ELISA $\Rightarrow$ Reacts to rat (100%); mouse (75%) and human (85%)

[Measurement Procedure]

Anti-C-peptide-coated plate (After 4 time-wash)

← sample / standard Solution (50 μ L)

Shake the plate for 5 ~ 10 seconds.

Shake, Incubate for 2 hours at RT, then Wash (3x)

← biotin-conjugated antibody (50 μ L)

Shake, Incubate for 2 hours at RT, then Wash (3x)

← HRP-conjugated streptavidin solution (50 μ L)

Shake, Incubate for 30 minutes at RT, then Wash (3x)

← Chromogenic substrate Solution (50 μ L)

Shake, Incubate for 30 minutes at RT

← Reaction Stopper (50 μ L)

Absorbance measurement at 450 nm (sub. 620nm)

↻ : Shake; RT : 20~25°C

For further information, please visit <http://www.shibayagi.co.jp/index-E.htm>

Description	Wako Cat. # (Pkg. Size)	Dynamic Range	Note
Mouse C-Peptide ELISA Kit (U Type)	631-07231 (96 tests) [AKRCP-031]	30 ~ 3,000 pg/mL	Keep and ship at 2~8℃
Rat C-Peptide ELISA Kit (U Type)	639-07271 (96 tests) [AKRCP-030]	30 ~ 3,000 pg/mL	
[Kit Contents]			
1. Anti-C-peptide-coated plate	96 wells (8 × 12)/plate	5. HRP-conjugated streptavidin	100 μL
2. Standard C-peptide solution (6,000 pg/mL)	500 μL	6. Chromogenic substrate reagent (TMB)	12 mL
3. Buffer Solution	60 mL	7. Reaction Stopper (1M H ₂ SO ₄)	12 mL
4. Biotin-conjugated anti-C-peptide	100 μL	8. Concentrated washing buffer (10 ×)	100 mL

1-h Creatinine

Creatinine is a breakdown product of creatine phosphate in muscle.

It is mainly filtered by the kidneys, though a small amount is actively secreted. LabAssay™ Creatinine is based on an in vitro colorimetric Jaffé method for the quantitative determination of creatinine in mouse serum or urine.

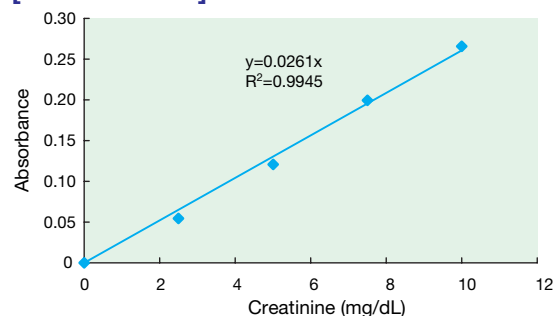
[Performance]

- (1) Sensitivity in a test tube (Absorbance):
Purified water: 0.010 ~ 0.020 / 10mg/dL creatinine: 0.400 ~ 0.500
- (2) Specificity (Creatinine Concentration):
A known concentration of control serum: within ±10%

[Reference]

- 1) Bonsnes, R. W. and Taussky, H. H., "On the colorimetric determination of creatinine by the Jaffé reaction": *J. Biol. Chem.*, **158**, 581-91(1945).
- 2) Henry, R. J.: *Clinical Chemistry*, 287 (Harper & Row), New York (1966).

[Standard curve]



Description	Wako Cat. # (Pkg. Size)	Dynamic Range	Note
LabAssay™ Creatinine (Jaffé method)	290-65901 (500 tests)	for Cellbiology	Keep at 2~10°C
[Kit Contents]			
1. Deproteinizing Reagent	1 vial × 150 mL	3. 0.75 mol/L Sodium Hydroxide Solution	1 vial × 50 mL
2. Picric Acid Reagent	1 vial × 50 mL	4. Standard Solution (Creatinine 10 mg/dL)	1 vial × 15 mL

1-i Glucagon

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 an important role in regulating sugar levels by elevating sugar in the blood, together with insulin.

[Principle]

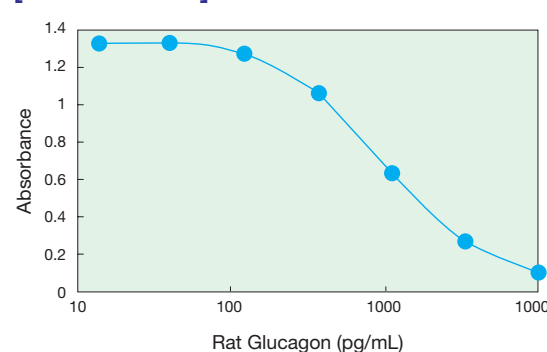
Mixture of biotinylated rat Pancreatic Glucagon and that in the sample or the standard material binds to rabbit antibody specific to rat Pancreatic Glucagon coated on the microplate well surface in competitive fashion. Sequential reaction with HRP-conjugated streptavidin results in a formation of HRP-streptavidin-biotin-antibody 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.

[Standard curve]



Description	Wako Cat. # (Pkg. Size)	Dynamic Range	Note
Rat Glucagon ELISA Kit Wako	297-57101 (96 tests)	50 ~ 10,000 pg/mL	Keep at 2~10°C
[Kit Contents]			
1. Antibody-coated Micro Plate	1 plate	6. Chromogen Diluent Solution	26 mL
2. Rat Glucagon Standard	10 ng	7. Buffer A	10 mL
3. Biotinylated Rat Glucagon	for 6 mL	8. Buffer B	15 mL
4. HRP-conjugated Streptavidin	12 mL	9. Wash Stock Solution (20 ×)	50 mL
5. Chromogen (OPD Tablet)	2 tablets	10. Stop Solution (1 mol/L H ₂ SO ₄)	12 mL
		11. Adhesive Plate Cover	4 covers

1-j GLP-1

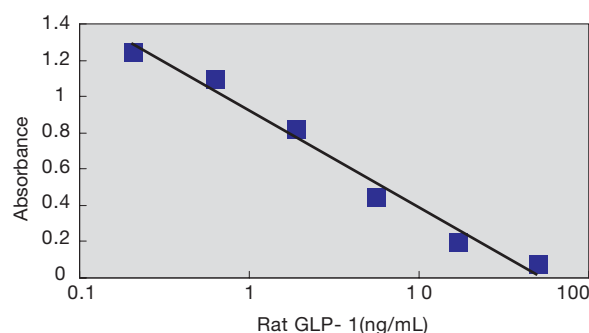
Glucagon-like peptide-1 (GLP-1) is an incretin hormone, which is synthesized in intestinal endocrine cells. This peptide is known to increase insulin secretion by glucose stimulation and suppress glucagon secretion. The kit is applicable to measure rat, mouse and human GLP-1.

[Features]

1. Sensitivity Dynamic Range : 206 ~ 50,000 pg/mL
2. Reproducibility
 - Intra-assay C.V. (%) = 5.4 ~ 6.6
 - Inter-assay C.V. (%) = 5.5 ~ 18.9
3. Specificity

Applicable to measure rat, mouse and human GLP-1.
Little cross-reactivity exists with rat GLP-2, human GLP-2, human glycyntin, and human glucagon.
4. Spike recovery: 89 ~ 110 % (Plasma)
5. Sample volume: 30µL

[Standard curve]



Description	Wako Cat. # (Pkg. Size)	Dynamic Range	Note
Rat GLP-1 ELISA Kit Wako	291-59201 (96 tests)	206 ~ 50,000 pg/mL	Keep at 2~10°C

[Kit Contents]			
1. Antibody-coated Microtiter Plate	1 plate	7. Chromogen (OPD Tablet)	2 tablets
2. Rat GLP-1 Standard	25 ng	8. Chromogen Diluent Solution	26 mL
3. Biotinylated Rat GLP-1	for 6 mL	9. Wash Stock Solution (20 ×)	50 mL
4. Anti Rat GLP-1, Rabbit	6 mL	10. Buffer	10 mL
5. HRP-conjugated Streptavidin	200 µL	11. Stop Solution	12 mL
6. HRP-conjugated Streptavidin Diluent	12 mL	12. Adhesive Plate Cover	3 pieces

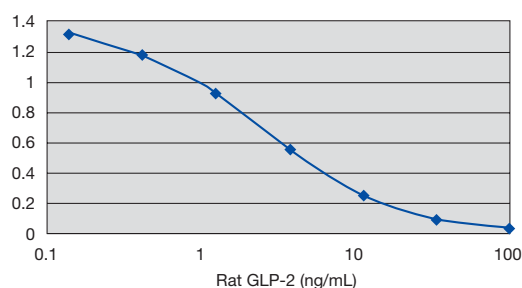
1-k GLP-2

Proglucagon is processed to GLP1 and GLP2 in intestinal L cells. It is reported that GLP-2 is a neurotransmitter involved in the regulation of food intake. The kit is able to measure GLP-2 in rat serum and plasma.

[Specificity]

Peptides	Cross-reactivity (%)
Rat GLP-2	100
Human GLP-2	105
Mouse GLP-2	182
Rat GLP-2 (14-33)	36
Rat GLP-2 (1-18)	< 0.1
Human Glycyntin	< 0.1
GLP-1 (7-36) NH ₂	< 0.1
Glucagon	< 0.1

[Standard curve]



[Measurement Procedure]

Antibody-coated Microtiter Plate
 ← Biotinylated Rat GLP-2 75 µL,
 Standard solution or sample 25 µL,
 Anti Rat GLP-2, Rabbit 50 µL

4°C, Incubate overnight

Wash (× 3)

← HRP-conjugated Streptavidin 100 µL

RT (20~30 °C), shake for 1 hour

Wash (× 5)

← HRP Reaction Solution 100 µL

RT (20~30 °C), Reaction for 30 minutes

← Stop Solution 100 µL

Absorbance measurement (492 nm)

[Reference]

Tang-Christensen, M. *et al.* : "The proglucagon-derived peptide, glucagon-like peptide-2, is a neurotransmitter involved in the regulation of food intake", *Nature Med.*, **6**, 802-7 (2000).

Description	Wako Cat. # (Pkg. Size)	Dynamic Range	Note
Rat GLP-2 ELISA Kit Wako	292-60601 (96 tests)	0.137 ~ 100 ng/mL	Keep at 2~10°C

[Kit Contents]			
1. Antibody-coated Microtiter Plate (Anti Rabbit IgG, Goat)	1 plate	6. Chromogen (OPD)	2 tablets
2. Rat GLP-2 Standard	50 ng	7. Chromogen Diluent Solution	26 mL
3. Biotinylated Rat GLP-2	1 vial	8. Wash Stock Solution (20 ×)	50 mL
4. Anti Rat GLP-2, Rabbit	6 mL	9. Buffer	25 mL
5. HRP-conjugated Streptavidin	12 mL	10. Stop Solution	12 mL
		11. Adhesive Plate Cover	3 covers

1-l Glucose

When a sample is mixed with the Chromogen Reagent, the α -form of glucose in the sample is converted to β -form by mutarotase. β -D-Glucose is oxidized and yields hydrogen peroxide by glucose oxidase (GOD). In the presence of peroxidase (POD), the formed hydrogen peroxide yields a red pigment by quantitative oxidation condensation with phenol and 4-aminoantipyrine. The glucose concentration is obtained by measuring absorbance of the red pigment.

[Performance]

(1) Sensitivity (Absorbance):

Purified water: max. 0.03 / 200mg/dL glucose sample: 0.40 ~ 0.55

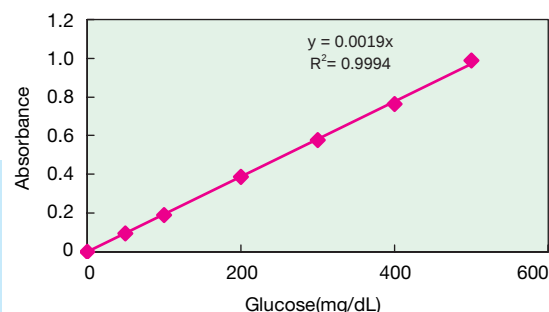
(2) Specificity (Glucose Concentration):

A known concentration of control serum or urine: within $\pm 12\%$

[Reference]

Miwa, I., Okuda, J., Maeda, K. and Okuda, G.: "Mutarotase effect on colorimetric determination of blood glucose with -D-glucose oxidase", *Clin. Chem. Acta.*, **37**, 538-40 (1972).

[Standard curve]



Description	Wako Cat. # (Pkg. Size)	Dynamic Range	Note
LabAssay™ Glucose (Mutarotase-GOD method)	298-65701 (1,000 tests)	0 ~ 500 mg/dL	Keep and ship at 2~10°C

[Kit Contents]			
1. Buffer	2 vials × 150 mL	3. Glucose Standard I (200 mg/dL Glucose)	1 vial × 10 mL
2. Chromogen Reagent	2 vials × for 150 mL	4. Glucose Standard II (500 mg/dL Glucose)	1 vial × 10 mL

1-m Leptin

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.

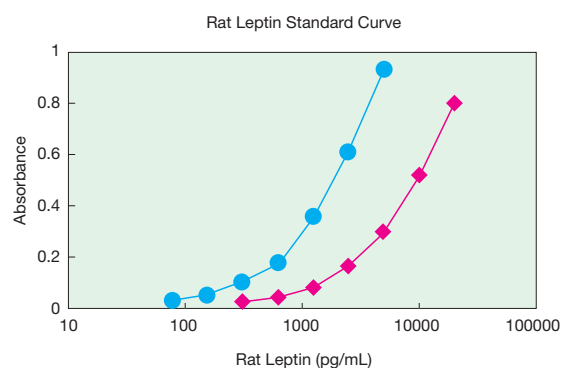
Dynamic range :

- 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.

[Standard curve]



Description	Wako Cat. # (Pkg. Size)	Dynamic Range	Note
Rat Leptin ELISA Kit Wako	297-57601 (96 tests)	Keep at 2~10°C	312.5 ~ 20,000 pg/mL (serum, plasma) 78.1 ~ 5,000 pg/mL (other samples)

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

1-n Insulin

- manufactured by Shibayagi -

Shibayagi can support your basic research, specially your diabetes research by their wide-range of immunoassay kits. Shibayagi provides various kinds of Insulin Assay Kits to measure animal insulin in normal state, high-level of insulin and insulin itself specifically. (Shibayagi's homepage: <http://www.shibayagi.co.jp/index-E.htm>)

[Features]

1. Rapid assay (3 hour reaction)
2. Highly-reproducible data (CV < 5 %)
3. TMB chromogenic reaction at 450 nm
4. Small sample volume
5. Excellent precision and reproducibility

[Measurement Procedure] [T type]

Anti-insulin-coated plate (After 4 times wash)

- ← Biotin conjugated anti insulin (100 μ L)
- ← Sample or standard soln. (10 μ L)

Shake, Incubate for 2 hours at RT, then Wash

- ← HRP conjugated streptavidin soln. (100 μ L)

Shake, Incubate for 30 minutes at RT, then Wash

- ← Substrate chromogenic reagent (100 μ L)

Shake, Incubate for 30 minutes at RT

- ← Reaction Stopper (100 μ L)

Absorbance measurement at 450nm (sub. 620 nm)

RT : 20~25°C

For further information, please visit <http://www.shibayagi.co.jp/index-E.htm>

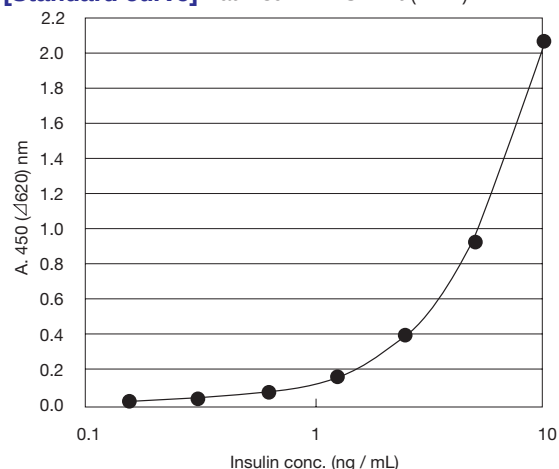
Insulin (TMB) at normal statemanufactured by Shibayagi

Insulin determination in normal state of mouse, rat, dog and porcine are applicable with the following kits. As for insulin measurement of hamster and rabbit, it enables insulin measurement by tying Rat Insulin ELISA Kit (TMB) to each Insulin Standard Solution, Hamster (Wako Cat. #634-07101) or Insulin Standard Solution, Rabbit (Wako Cat. #631-07111).

[Features]

1. Small sample volume (10 μ L)
2. Simple assay procedures
3. TMB chromogenic reaction at 450 nm

[Standard curve] Rat Insulin ELISA Kit (TMB)



Description [Shibayagi Code No.]		Wako Cat. # (Pkg. Size)	Dynamic Range	Note
Mouse Insulin ELISA Kit (TMB)	[AKRIN-011T]	634-01481 (96 tests)	156 ~ 10,000 pg/mL	Keep at 2~8°C
Rat Insulin ELISA Kit (TMB)	[AKRIN-010T]	637-01471 (96 tests)	156 ~ 10,000 pg/mL	
Dog Insulin ELISA Kit (TMB)	[AKRIN-012T]	633-01451 (96 tests)	188 ~ 12,000 pg/mL	
Porcine Insulin ELISA Kit (TMB)	[AKRIN-013T]	630-01461 (96 tests)	188 ~ 12,000 pg/mL	
[Kit Contents]				
1. Anti-Insulin-coated plate	96 wells (8 × 12)/plate	5. HRP-conjugated streptavidin	20 μL/vial	
2. Standard Insulin solution	25 μL/vial	6. Substrate chromogen reagent (TMB)	12 mL/bottle	
3. Buffer Solution	60 mL/bottle	7. Reaction Stopper (1M H ₂ SO ₄)	12 mL/bottle	
4. Biotin-conjugated anti-Insulin	10 μL/vial	8. Washing buffer concentrate (10 ×)	100 mL/bottle	

Description [Shibayagi Code No.]	Wako Cat. # (Pkg. Size)	Assay data	Note
Hamster Insulin Standard [ASIN-001] for determination of hamster insulin	630-07103 (5 × 250 μ L)	Mean: 0.441 ng/mL SD : 0.178 ng/mL	Keep at 2~8°C Please use along with Rat Insulin ELISA Kit (TMB) (Wako Cat. #637-01471).
Rabbit Insulin Standard [ASIN-003] for determination of rabbit insulin	637-07113 (5 × 250 μ L)	Mean: 0.745 ng/mL SD : 0.334 ng/mL	

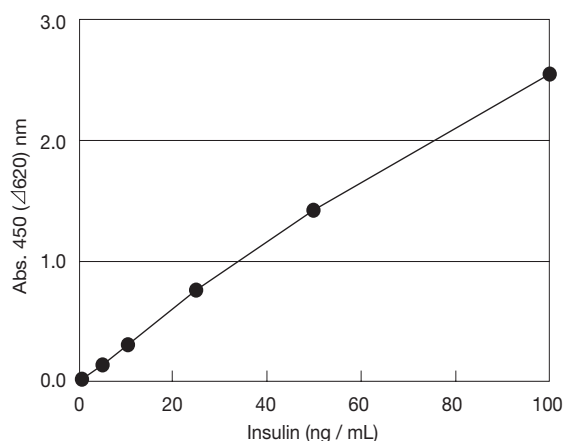
[]: Shibayagi Product No.

High Level of Insulin (H-Type) manufactured by Shibayagi

Determination Kits for High Levels of Insulin from samples such as transgenic mouse or Min-6 are available from Shibayagi. Without diluting the samples, you can measure the insulin value directly. We can offer two kits: for mouse and for rat high-level of insulin.

[Features]

1. Assay samples: 10 µL/well of serum or plasma. Cultured tissue, cells and media
2. Simple assay procedures
3. TMB chromogenic reaction at 450 nm

[Standard curve]

Description [Shibayagi Code No.]	Wako Cat. # (Pkg. Size)	Dynamic Range	Note
Mouse Insulin ELISA Kit (H-Type) [AKRIN-011H]	630-10371 (96 tests)	0.5 ~ 100 ng/mL	Keep at 2~8°C
Rat Insulin ELISA Kit (H-Type) [AKRIN-010H]	633-10621 (96 tests)	0.5 ~ 100 ng/mL	
[Kit Contents]			
1. Antibody-coated plate	96 wells (8 × 12)/plate	5. Peroxidase-conjugated streptavidin	200 μL/vial
2. Standard Insulin solution (200 ng/mL)	300 μL/vial	6. Chromogen substrate reagent (TMB)	12 mL/vial
3. Buffer Solution	60 mL/vial	7. Reaction Stopper (1M H ₂ SO ₄)	12 mL/vial
4. Biotin-conjugated anti-Insulin	200 μL/vial	8. Concentrated washing buffer (10 ×)	100 mL/bottle

Insulin Specific (S-Type) manufactured by Shibayagi

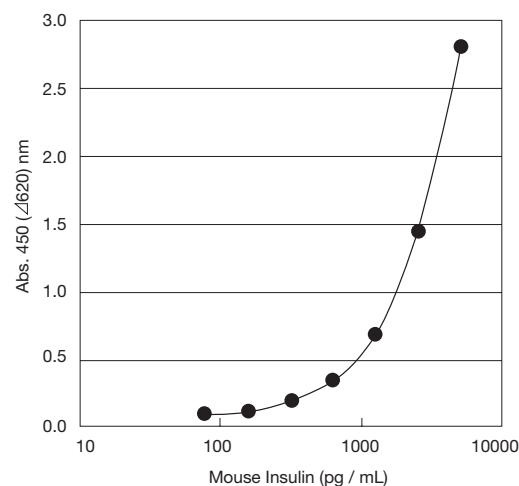
This kit is for measurement of mouse insulin with high specificity and high sensitivity using Sandwich assay principle with least influence of co-existing proinsulin. Two kits: for mouse and for rat are available.

[Features]

1. 3 hour rapid assay
2. A small sample volume (rat: 10 µL; mouse: 5 µL)
3. Ready-to-use reagents

[Cross-reactivity]

to proinsulin: less than 5%
to C-peptide: below measurable limits

[Standard curve]

Description	Wako Cat. # (Pkg. Size) [Shibayagi Code #]	Dynamic Range	Note
Mouse Insulin ELISA Kit (S-Type) , Specific to insulin	636-07281 (96 tests) [AKRIN-011S]	100 ~ 10,000 pg/mL	Keep at 2~8°C
Rat Insulin ELISA Kit (S-Type) , Specific to insulin	637-07191 (96 tests) [AKRIN-010S]	78 ~ 5,000 pg/mL	
[Kit Contents]			
1. Anti-insuline-coated plate	96 wells (8 × 12)/plate	5. Peroxidase-conjugated streptavidin	12 mL/vial
2. Standard Insulin solution (5,000 pg/mL)	500 µL/vial	6. Chromogen substrate reagent (TMB)	12 mL/vial
3. Buffer Solution	60 mL/vial	7. Reaction Stopper (1M H ₂ SO ₄)	12 mL/vial
4. Biotin-conjugated anti-Insulin	200 µL/vial	8. Concentrated washing buffer (10 ×)	100 mL/bottle

1-o Triglyceride

Lipids in serum consist of triglycerides, cholesterol, phospholipids, free fatty acids and slight amounts of fat-soluble components such as fat-soluble vitamins and carotenes. Triglycerides, as major components of very low density lipoprotein (VLDL) and chylomicrons, play an important role in metabolism as energy sources and transporters of dietary fat.

This kit is based on an enzymatic method using *N*-ethyl-*N*-(2-hydroxy-3-sulfo-propyl)-3,5-dimethoxyaniline sodium salt (DAOS) as a blue pigment.

[Performance]

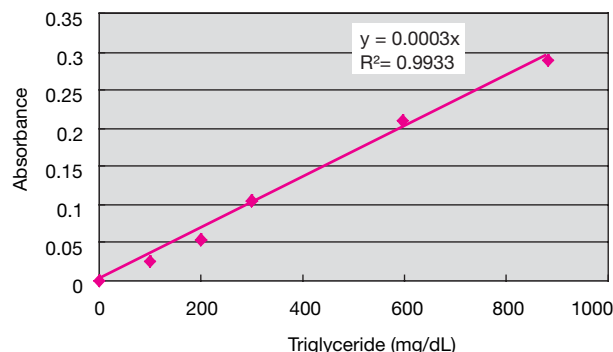
(1) Sensitivity (Absorbance):

Purified water: max. 0.10 / 300 mg/dL triglyceride sample: 0.09 ~ 0.25

(2) Specificity (Triglyceride Concentration):

A known concentration of control serum: within $\pm 12\%$

[Standard curve]



[Reference]

Spayd, R. W., Bruschi, B., et al.: "Multilayer film elements for clinical analysis: applications to representative chemical determinations", *Clin. Chem.*, **24**, 1343-50 (1978).

Description	Wako Cat. # (Pkg. Size)	Grade	Note
LabAssay™ Triglyceride (GPO · DAOS method)	290-63701 (1,000 tests)	for Cellbiology	Keep at 2~10 °C

[Kit Contents]

1. Buffer	3 vials × 105 mL	3. Standard Solution	1 vial × 10 mL
2. Chromogen Substrate	3 vials × for 105 mL		

1-p Uric Acid

Uric acid is the relatively water-insoluble end product of purine nucleotide metabolism.

This kit is able to measure uric acid in mouse and human serum by an enzyme reaction using *N*-Ethyl-*N*-(2-hydroxy-3-sulfo-propyl)-3-methylaniline sodium salt (TOOS).

[Performance]

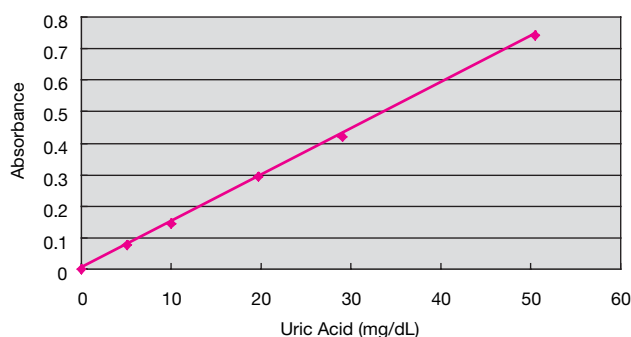
(1) Sensitivity (Absorbance)

Purified water: max. 0.15 / 10 mg/dL Uric Acid: 0.04 ~ 0.26

(2) Specificity (uric acid concentration):

a known concentration of control serum: within $\pm 15\%$

[Standard curve]



[Reference]

Kabasakalian, P., Kalliney, S. and Westcott, A.: "Determination of uric acid in serum, with use of uricase and a tribromophenol-aminoantipyrine chromogen", *Clin. Chem.*, **19**, 522-524 (1973).

Description	Wako Cat. # (Pkg. Size)	Grade	Note
LabAssay™ Uric Acid (Uricase · TOOS method)	292-64001 (1,300 tests)	for Cellbiology	Keep at 2~10 °C

[Kit Contents]

1. Chromogen	4 vials × for 100 mL	3. Standard Solution (Uric acid 10 mg/dL)	1 vial × 10 mL
2. Buffer	4 vials × 100 mL		

2-a Anti CETP and Anti VGLUT

Anti Human CETP, Monoclonal Antibody (Clone No. CETP-4)

Wako Cat. No. 010-21241 (100 µg) <for Immunocytochemistry>

☞ Please see the page #7.

Anti Human CETP, Monoclonal Antibody (Clone No. CM5, a-27)

Wako Cat. No. 017-21251 (100 µg) <for Immunocytochemistry>

☞ Please see the page #7.

—Wako Product Update Bio-No.2

Antibodies against Vesicular Glutamate Transporters**Anti Rat VGLUT-1, Rabbit**

L-Glutamate is an excitatory chemical transmitter that plays an essential role in neuronal plasticity, behavior, learning and memory in the central nervous system. On the other hand, VGLUTs play an essential role in glutamate signal output through vesicular storage of L-glutamate. Three kinds of VGLUTs have been identified so far. Recent studies have demonstrated that VGLUTs are also expressed in peripheral cells such as stomach, intestines, pancreas and testes. In particular, the discovery that glutamate is co-localized with glucagon in secretory granules in cells of islets of Langerhans has been noted for new mechanism of blood glucose control. Anti Rat VGLUT, Rabbit can detect glutamatergic central nerves, peripheral nerves and nonneural cells.

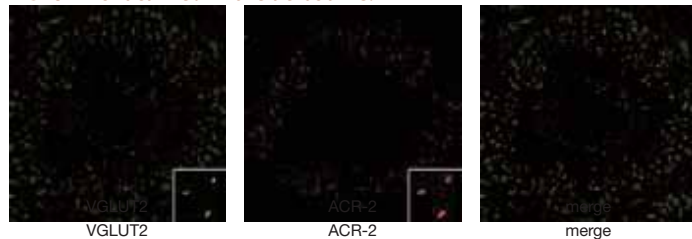
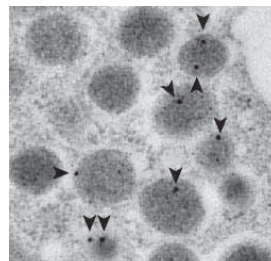
Both antibodies are applicable to immunocytochemistry, immunoelectron microscopy and Western blotting.

Anti Rat VGLUT1, Rabbit

Raised against the GST fusion peptide encoding G 509-S 560 of the cytosolic regions of VGLUT1

Specificity: Specific to rat, mouse, human and bovine VGLUT-1.
No reactive to VGLUT-2**Working Conc.:** Immunofluorescence 1 : 1,500**Anti Rat VGLUT2, Rabbit**

Raised against the GST fusion peptide encoding G 500-Y 582 of cytosolic regions of VGLUT2

Specificity: Specific to rat, mouse, human and bovine VGLUT-2.
No reactive to VGLUT-1**Working Conc.:** Immunofluorescence 1 : 1,500**Application [1]: Immunofluorescence****VGLUT1 is co-localized with glucagon in cells of islets of Langerhans.****VGLUT2 is co-localized with glucagon in L-cells in the mucosa of ileum.****VGLUT2 is localized in the acrosome.****Application [2]: Immunoelectron microscopy**

Double immunoelectron microscopy in cells of islets of Langerhans. Glucagon (5nm) and VGLUT2 (15nm) (arrowheads) are co-localized with secretory granules.
Photo by Dr. Mitsuko Hayashi (Yale Univ.)

[References]

- 1) Moriyama, Y. and Hayashi, M. : "Glutamate-mediated signaling in the islets of Langerhans: a thread entangled", *TRENDS Pharmacol. Sci. electric version*, **24**, 511-7 (2003).
- 2) Morimoto, R., Hayashi, M., Yatsushiro, S., Otsuka, M., Yamamoto, A. and Moriyama, Y. : "Co-expression of vesicular glutamate transporters (VGLUT1 and VGLUT2) and their association with synaptic-like microvesicles in rat pinealocytes", *J. Neurochem.*, **84**, 382-91 (2003).
- 3) Hayashi, M., Morimoto, R., Yamamoto, A. and Moriyama, Y. : "Expression and localization of vesicular glutamate transporters in pancreatic islets, upper gastrointestinal tract, and testis", *J. Histochem. Cytochem.*, **51**, 1375-90 (2003).
- 4) Hayashi, M., Yamada, H., Uehara, S., Morimoto, R., Takeda, J., Yamamoto, A. and Moriyama, Y. : "Secretory granule-mediated co-secretion of L-glutamate and glucagon triggers a glutamatergic signal transmission in islets of Langerhans", *J. Biol. Chem.*, **278**, 1966-74 (2003).
- 5) Hayashi, M., Otsuka, M., Morimoto, R., Muroyama, A., Uehara, S., Yamamoto, A., and Moriyama Y. : "Vesicular inhibitory amino acid transporter is present in glucagon-containing secretory granules in aTC6 cells, mouse clonal cells, and a cells of islets of Langerhans", *Diabetes*, **52**, 2066-74 (2003).

Description	Wako Cat. #	Package Size	Grade	Note
Anti Rat VGLUT-1, Rabbit	010-19771	50 µg (100 µL)	for Immunocytochemistry	Keep at -20 °C
Anti Rat VGLUT-2, Rabbit	017-19781	50 µg (100 µL)		

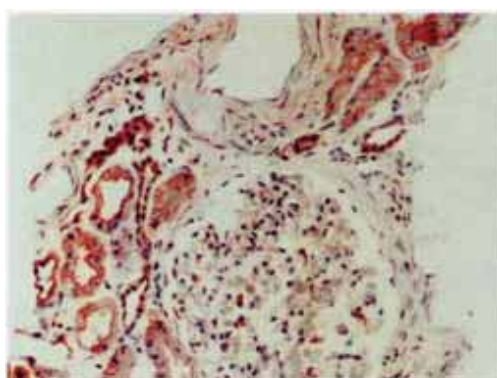
2-b Antibodies useful for diabetes mellitus

-manufactured by TransGenic-

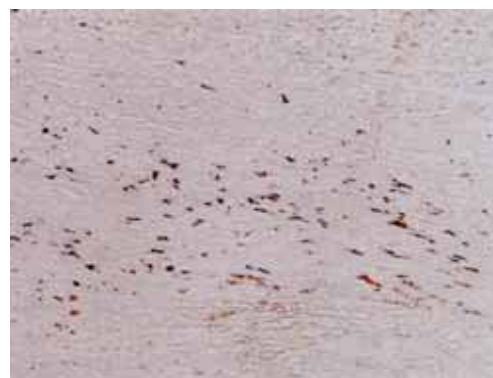
Antibody useful for research in diabetes mellitus



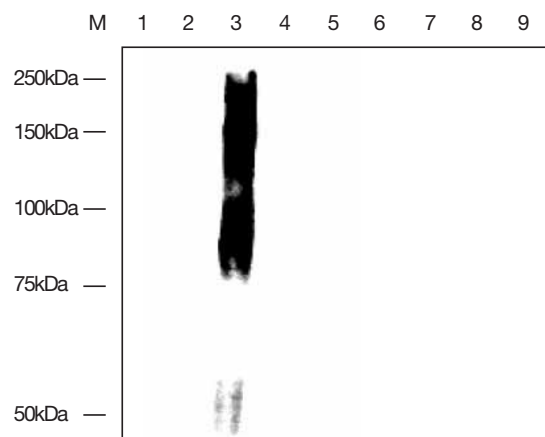
The products of the nonenzymatic glycation and oxidation of proteins, lipids and nucleic acids, the advanced glycation end-products (AGEs), accumulate in various pathological conditions, such as diabetes, inflammation, renal failure, and aging. AGEs can arise not only from glucose, but also from dicarbonyl compounds, short chain-reducing sugars and other metabolic pathways of glucose. Several AGEs have been already identified including AGE-1 ~ 6, CML, CEL. Recently studies demonstrated that the presence of AGEs-modified proteins in several human tissues: (i) human lens (nondiabetic and noncataractous), (ii) renal proximal tubules in patients with diabetic nephropathy and chronic renal failure, (iii) diabetic retina, (iv) peripheral nerves of diabetic neuropathy, (v) atherosclerotic lesions of arterial walls, (vi) b2-microglobulin forming amyloid fibrils in patients with hemodialysis-related amyloidosis, (vii) senile plaques of patients with Alzheimer's disease, (viii) the peritoneum of CAPD patients, (ix) skin elastin in actinic elastosis, and (x) ceroid/lipofuscin deposits, suggesting that AGEs are deeply involved in diabetes and complications of diabetes mellitus.



Immunohistochemical staining of renal proximal tubules and glomeruli in patients with diabetic nephropathy, using anti-AGEs antibody 6D12.
Yamada, K. et al. : *Clinical nephrology*, Vol.42. 354-361, 1994.



Immunohistochemical staining of the early stage of human atherosclerotic lesions of the aorta with anti-AGEs antibody 6D12.
Kume, S. et al. : *American Journal of Pathology*, Vol.147, 654-667, 1995.



Western blotting with anti AGE-3 antibody (Clone No.9 D8)

- 1 ; AGE1-BSA (glucose-modified)
- 2 ; AGE2-BSA (glyceraldehyde -modified)
- 3 ; AGE3-BSA (glycolaldehyde -modified)
- 4 ; AGE4-BSA (methylglyoxal -modified)
- 5 ; AGE5-BSA (glyoxal-modified)
- 6 ; AGE6-BSA (3-DG-modified)
- 7 ; CKL-BSA (carboxymethyllysine -modified)
- 8 ; CEL-BSA (carboxyethyllysine -modified)
- 9 ; BSA

Trans Genic homepage: <http://www.transgenic.co.jp>

List of antibody useful for research in diabetes mellitus (For research use only)



Wako Cat. No.	Product Name	Pkg.Size	Specificity
306-08731	Anti AGEs, Monoclonal Antibody (Clone: 6D12) [KH001]	10 µg / 40 µL	every animal species
308-34941	Anti AGEs Monoclonal Antibody (Clone No. 6D12), Biotin conjugated [KH001-01]	10 µg / 40 µL	every animal species
302-35941	Anti AGEs Monoclonal Antibody (Clone No.6D12), Peroxidase Conjugated [KH001-02]	20 µg / 200 µL	every animal species
305-08821	Anti Pyrraline Monoclonal Antibody (Clone No.H12) [KH010]	20 µg / 80 µL	every animal species
305-34951	Anti Pyrraline Monoclonal Antibody (Clone No. H12), Biotin conjugated [KH010-01]	20 µg / 80 µL	every animal species
302-34961	Anti Pyrraline Monoclonal Antibody (Clone No. H12), Peroxidase conjugated [KH010-02]	20 µg / 80 µL	every animal species
302-08831	Anti CML Monoclonal Antibody(Clone No.CMS-10) [KH001]	50 µg / 200 µL	every animal species
309-34971	Anti CML Monoclonal Antibody (Clone No. CMS-10), Biotin conjugated [KH011-01]	50 µg / 200 µL	every animal species
306-34981	Anti CML Monoclonal Antibody (Clone No. CMS-10), Peroxidase conjugated [KH011-02]	50 µg / 200 µL	every animal species
309-08841	Anti Pentosidine Monoclonal Antibody (Clone No. PEN-12)* [KH012]	50 µg / 200 µL	every animal species
303-34991	Anti Pentosidine Monoclonal Antibody (Clone No. PEN-12), Biotin conjugated* [KH012-01]	50 µg / 200 µL	every animal species
300-35001	Anti Pentosidine Monoclonal Antibody (Clone No. PEN-12), Peroxidase conjugated* [KH012-02]	50 µg / 200 µL	every animal species
303-09961	Anti CML Monoclonal Antibody (Clone No. NF-1G) [KH024]	50 µg / 200 µL	every animal species
307-09981	Anti CML Monoclonal Antibody (Clone No. NF-1G), Biotin conjugated [KH024-01]	50 µg / 200 µL	every animal species
304-09991	Anti CML Monoclonal Antibody (Clone No. NF-1G), Peroxidase conjugated [KH024-02]	50 µg / 200 µL	every animal species
300-09971	Anti CEL Monoclonal Antibody (Clone No. KNH-30) [KH025]	50 µg / 200 µL	every animal species
305-10031	Anti CEL, Monoclonal Antibody (Clone: KNH-30), Biotin Conjugated [KH025-01]	50 µg / 200 µL	every animal species
302-10041	Anti CEL, Monoclonal Antibody (Clone: KNH-30), Peroxidase conjugated [KH025-02]	50 µg / 200 µL	every animal species
304-13041	Anti Human RAGE polyclonal Antibody, Rabbit [KH039]	100 µg / 400 µL	Human
308-10381	Anti Human Galectin-3 polyclonal Antibody, Rabbit [KH040]	100 µg / 400 µL	Human
305-13451	Anti 3-DG-imidazolone Monoclonal Antibody (Clone No. JNH-27) [KH043]	50 µg / 200 µL	every animal species
308-31881	Anti Human PPAR γ Polyclonal Antibody [KG113]	100 µg / 400 µL	Human
305-31891	Anti Human AdipoR1 Polyclonal Antibody [KG114]	100 µg / 400 µL	Human
308-31901	Anti Human β 3-AR Polyclonal Antibody [KG115]	100 µg / 400 µL	Human
309-34111	Anti AGE-3 Monoclonal Antibody (Clone No. 9D8) [KG122]	10 µg / 40 µL	every animal species
307-34891	Anti AGE-1 Monoclonal Antibody (Clone No. 7C1) [KG132]	10 µg / 40 µL	every animal species
300-34901	Anti AGE-4 Monoclonal Antibody (Clone No. 14B5) [KG133]	10 µg / 40 µL	every animal species
307-34911	Anti Human RAGE Monoclonal Antibody (Clone No. 1C5) [KG134]	50 µg / 200 µL	Human
302-34601	AGEs-BSA** [KH001-A]	1mg / mL	-

[]: TransGenic Product No.

* Not available for sale in USA.

**Antigen

3-a Kv2.1 / Kv2.2 Channel Blocker / Enhancer of Glucose-Dependent Insulin Secretion

Guangxitoxin-1E manufactured by Peptide Institute

Peptides with selective channel blocking activity have been used to clarify the specific function of the channels. Now, **guangxitoxin-1E (GxTX-1E)**, which was isolated from the venom of spider (*Plesiophrictus guangxiensis* sp. nov.), has been identified as a unique blocker for the K⁺ channels¹⁾.

GxTX-1E blocks Kv2.1 and Kv2.2 (and to a lesser extent Kv4.3) selectively, with a half-maximal concentration of less than 1 nmol/L. Furthermore, this peptide does not significantly affect the other K⁺ channels, Ca²⁺ channels, nor Na⁺ channels. In mouse β -cells, **GxTX-1E** inhibits 90% of delayed-rectifier K⁺ current (IDR) and, as for Kv2.1, shifts the voltage dependence of channel activation to more depolarized potentials, a characteristic of gating-modifier peptide. So far, Kv2.1 voltage-dependent K⁺ channels are known to be involved in

i) enhancement of glucose-dependent insulin secretion²⁾ and ii) regulation of the pancreatic β -cell Ca²⁺ response to glucose³⁾. All these effects are attractive characteristics in relation to an investigation into the etiology of type 2 diabetes. Therefore, **GxTX-1E** would be useful tool for the diabetic research.

Guangxitoxin-1E

[GxTX-1E]

(Tarantula, *Plesiophrictus guangxiensis* sp. nov.)

(Trifluoroacetate Form; Disulfide bonds: Undetermined)

Glu-Gly-Glu-Cys-Gly-Gly-Phe-Trp-Trp-Lys-Cys-Gly-Ser-Gly-Lys-Pro-Ala-Cys-Cys-Pro-Lys-Tyr-Val-Cys-Ser-Pro-Lys-Trp-Gly-Leu-Cys-Asn-Phe-Pro-Met-Pro

C₁₇₈H₂₄₈N₄₄O₄₅S₇ = 3948.6

[References]

- 1) J. Herrington, Y.-P. Zhou, R.M. Bugianesi, P.M. Dulski, Y. Feng, V.A. Warren, M.M. Smith, M.G. Kohler, V.M. Garsky, M. Sanchez, M. Wagner, K. Raphaelli, P. Banerjee, C. Ahaghotu, D. Wunderler, B.T. Priest, J.T. Mehl, M.L. Garcia, O.B. McManus, G.J. Kaczorowski, and R.S. Slaughter, : "Blockers of the delayed-rectifier current in pancreatic β -cells enhance glucose-dependent insulin secretion", *Diabetes*, **55**, 1034-42 (2006). (Original)
- 2) P.E. MacDonald, S. Sewing, J. Wang, J.W. Joseph, S.R. Smukler, G. Sakellaropoulos, J.Wang, M.C. Saleh, C.B. Chan, R.G. Tsushima, A. M. Salapatek, and M.B. Wheeler, : "Inhibition of Kv2.1 voltage-dependent K⁺ channels in pancreatic beta-cells enhances glucose-dependent insulin secretion", *J. Biol. Chem.*, **277**, 44938-45 (2002). (Pharmacol.; Role of Kv2.1 in Glucose-Dependent Insulin Secretion)
- 3) N.A. Tamarina, A. Kuznetsov, L.E. Fridlyand, and L.H. Philipson, : "Delayed-rectifier (KV2.1) regulation of pancreatic beta-cell calcium responses to glucose: inhibitor specificity and modeling", *Am. J. Physiol. Endocrinol. Metab.*, **289**, E578-85 (2005). (Pharmacol.; Role of Kv2.1 in Glucose-Dependent Ca²⁺ response)
- 4) J. Herrington : "Gating modifier peptides as probes of pancreatic β -cell physiology", *Toxicon*, **49**, 231-8 (2007). (Review)

Description	Wako Cat. # (Pkg. Size)	Note
Guangxitoxin-1E [4433-s]	334-44331 (0.1 mg)	keep at -20°C
[]: Peptide Institute Product No.		

3-b Sulfonylurea (SU) Antidiabetic Agents

Description	Wako Cat. # (Pkg. Size)	Note
Acetohexamide , 97.0+% (Titration)	018-18731 (10 g) 016-18732 (25 g)	Sulfonylurea (SU) Agents for treating Type 2 Diabetes-ATP sensitive K ⁺ Channel Blocker
Glibenclamide , 98.0+% (Titration)	078-03881 (5 g) 076-03882 (25 g)	
Gliclazide , 98.0+% (Titration)	071-04731 (10 g) 079-04732 (25 g)	
Tolazamide , 96.0+% (Titration)	202-15211 (5 g) 200-15212 (25 g)	
Tolbutamide , 99.0+% (Titration)	209-09172 (25 g)	

3-c Biguanide Antidiabetic Agents

Description	Wako Cat. # (Pkg. Size)	Note
Buformine Hydrochloride , 98.0+% (Titration)	028-10052 (25 g)	Biguanide, a therapeutic agent for treating Type 2 Diabetes
Metformin Hydrochloride , 98.0+% (Titration)	138-15481 (100 g)	
	130-15485 (500 g)	

3-d Diabetes Complication

Description	Wako Cat. # (Pkg. Size)	Note
Aldose Reductase, Human, recombinant	547-00581 (0.4 units)	Research for Diabetes Complication-Aldose Reductase Inhibitor
Epalrestat	058-07701 (1 g) 054-07703 (5 g)	
D-3-Hydroxybutyrate Dehydrogenase, from <i>Pseudomonas</i> sp.	086-05441 (5 mg)	
Sorbitol Dehydrogenase	199-12391 (500 units)	Research for Diabetes Complication

3-e Glucagon Like Peptides

Exendin-related Peptides

While GLP-1 (Glucagon-like peptide-1), which inhibits glucagon secretion and has insulinotropic action, etc., is expected as a therapeutic agent for treating Type 2 diabetes, it is easy to degrade by intestinal enzymes. Exendin-4 has action comparable to GLP-1 and is resistant to degrade.

Description [Peptide Institute No.]	Wako Cat. # (Pkg. Size)	Note
Exendin-4	050-07261 (0.5 mg)	Strong antagonist of GLP-1 Receptor, Keep at -20°C
Exendin-3	053-07251 (0.5 mg)	Stable GLP-1 analog, Keep at -20°C
Exendin (9-39)	056-07241 (0.5 mg)	Antagonist of GLP-1 Receptor/Competitive inhibitor of Exendin-3, Exendin-4, Keep at -20°C
Exendin-4 (3-39)	057-07271 (0.5 mg)	Strong antagonist of GLP-1 Receptor, Keep at -20°C
Exendin (5-39) [4345-v]	330-43451 (0.5 mg)	GLP-1 Receptor Antagonist, Keep at -20°C
(Des-His1, Glu8)-Exendin-4	054-07281 (0.5 mg)	GLP-1 Receptor Antagonist, Keep at -20°C
Glucagon (Human) [4098-s]	339-40981 (0.1 mg)	Keep at -20°C
Glucagon-like Peptide 1 (Human, 7-36 Amide) [4344-v]	333-43441 (0.5 mg)	Inhibitor for Food Intake, Keep at -20°C
Glucagon-like Peptide 1 (Human, 7-37) [4280-v]	335-42801 (0.5 mg)	GLP-1, Keep at -20°C
Glucagon-like Peptide 2 (Human) [4376-v]	335-43767 (0.5 mg)	GLP-2, Keep at -20°C

[]: Peptide Institute Product No.

3-f Resistance to insulin

Resistin, recombinant *Resistin: molecule termed as "Resistin" signifying resistance to insulin*

Resistin is a dimeric hormone secreted by mast cells and is attracting attention as a substance which impairs insulin action. TNF- α and free fatty acid are known as resistins.

Serum resistin concentration decreases with administration of antidiabetic drugs and is elevated when obesity occurs. It was also found that administration of resistin-neutralizing substance to obese mice restored serum glucose levels and insulin action. Based on these findings, it is believed that resistin is a key link between obesity and diabetes.

Human Resistin

Description : Lyophilized from 10 mmol/L sodium citrate (pH 3.0). Filtered and sterilized.

	Human resistin	Mouse Resistin
Appearance	Lyophilized from the filter sterilized 10 mol/L sodium citrate (pH 3.0)	Lyophilized from the filter sterilized 20 mmol/L Tris (pH 8.0)
Source	Human resistin cDNA expressed in <i>E. coli</i> .	Source : Mouse resistin cDNA expressed in <i>E. coli</i> .
Molecular Weight	19,500	20,200
Endotoxins	< 0.1 ng/ μ g (1 EU/ μ g)	< 0.1 ng/ μ g (1 EU/ μ g)

[Reference]

Steppan, C.M., et al.: "The hormone resistin links obesity to diabetes", *Nature*, **409**, 307-12 (2001).

Description	Wako Cat. # (Pkg. Size)	Note
Resistin, Human (Lyophilized)	187-01801 (25 μ g)	Keep at -20°C
Resistin, Mouse (Lyophilized)	184-01811 (25 μ g)	

3-g Others

Acrp30, globular domain, Mouse, recombinant*Acrp30: substance which improves insulin resistance***Wako Cat. #017-19541 (25 µg)****Keep at -20°C, Lyophilized**

Acrp30 is a mouse homologue of adiponectin¹⁾. Adiponectin/Acrp30 is a adipocytokine secreted by adipose tissues. Unlike TNF- α or leptin, the serum levels of Acrp30 is known to decrease as obesity increases. It was recently reported that injection of adiponectin to diabetic mice improved insulin resistance²⁾.

Mouse globular domain is a decomposition product of Acrp30 with molecular weight of 16,000 comprising 145 amino acids³⁾. It is characterized by more potent activity than Acrp30.

Appearance : Lyophilized from the filter sterilized 5 mmol/L Tris (pH 7.6)**Source** : Mouse globular domain Acrp30- cDNA expressed in *E. coli*.**Endotoxin** : < 0.1 ng/µg (1 E_u/µg)**Reconstitution** : Dissolve with 5 mmol/L Tris (pH 7.6) to make 0.1~1.0 mg/mL solution.**[References]**

- 1) Maeda, K. *et al.*: "cDNA cloning and expression of a novel adipose specific collagen-like factor, apM1 (AdiPose Most abundant Gene transcript 1).", *Biochem. Biophys. Res. Commun.*, **221**, 286-9 (1996).
- 2) Yamauchi, T. *et al.*: "The fat-derived hormone adiponectin reverses insulin resistance associated with both lipoatrophy and obesity", *Nat. Med.*, **7**, 941-6 (2001).
- 3) Scherer, P.E., *et al.*: "A novel serum protein similar to C1q, produced exclusively in adipocytes", *J. Biol. Chem.*, **270**, 24746-9 (1995).

Description	Wako Cat. # (Pkg. Size)	Note
Acrp30, Globular Domain, Mouse, recombinant (Acrp30: 30-kDa adipocyte complement-related protein)	017-19541 (25 µg)	mouse homologue of adiponectin
Betacellulin, Rat, recombinant	022-14391 (10 µg)	a member of the epidermal growth factor family
Betacellulin, Human, recombinant	025-14381 (10 µg)	
Dendrotoxin I [4330-s]	339-43301 (0.1 mg vial)	Voltage-Dependent K ⁺ Channel Blocker
Hypericin	086-07761 (1 mg)	Inhibits protein kinase C, insulin receptor, EGF receptor, casein kinase II, and tyrosine kinase activity of MAP kinase.
	082-07763 (5 mg)	
D-chiro-Inositol	090-03821 (100 mg)	for research on non-insulin-dependent diabetes
	096-03823 (500 mg)	
Insulin, Human, recombinant	090-03446 (50 mg)	Source: Yeast expressed human insulin
	096-03443 (100 mg)	
	090-03441 (1 g)	
	094-03444 (10 g)	
Insulin-like Growth Factor-I (IGF-I), Human, recombinant	099-04511 (100 µg)	Related to promotion of glucose uptake and oxidation in fat tissue and muscle (insulin-like action) and promotion of DNA synthesis in fibroblasts
Insulin-like Growth Factor-II (IGF-II), Human, recombinant	092-04523 (50 µg)	
Karanjin	114-00471 (500 mg)	antihyperglycemic agent
Margatoxin [4290-s]	331-42901 (0.1 mg vial)	Voltage-Dependent K ⁺ Channel Blocker (Specific for Kv1.3 Channel)
MCD-Peptide [4258-v]	333-42581 (0.5 mg vial)	Voltage-Dependent K ⁺ Channel Blocker
Stichodactyla Toxin [4287-s]	334-42871 (0.1 mg vial)	Voltage-Dependent K ⁺ Channel (A Channel) Blocker
Streptozotocin (STZ)	549-00281 (100 mg)	Preparation of Experimental Diabetes Model / streptozotocin, an antibiotic and diabetogenic nitrosamine compound derived from <i>Streptomyces achromogenes</i> to induce new kidney tumors in BALB/c mice.
	545-00283 (500 mg)	
	543-00284 (1 g)	
	549-00286 (5 g)	
Tityustoxin Kα [4313-s]	338-43131 (0.1 mg vial)	Voltage-Dependent K ⁺ Channel (A Channel) Blocker

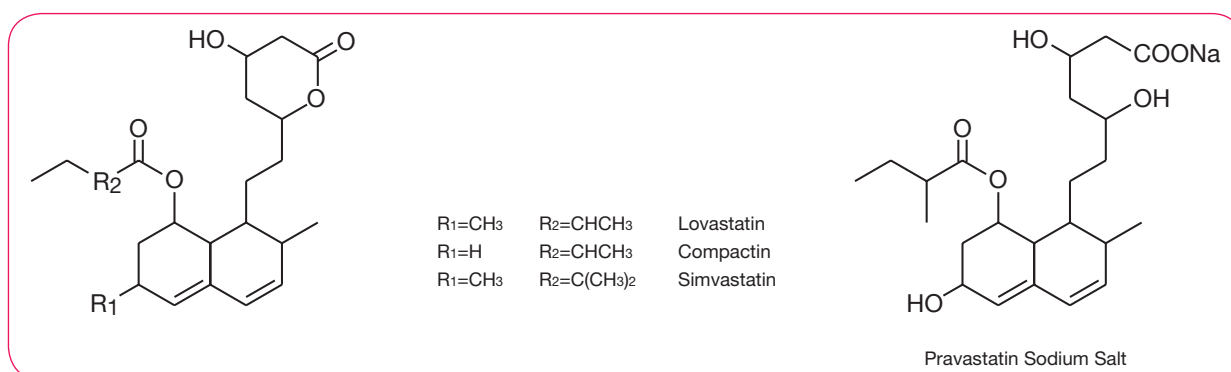
[]: Peptide Institute Product No.

4-a 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.

[References]

- 1) Singer, I. I., *et al.*: "Lovastatin, an inhibitor of cholesterol synthesis, induces hydroxymethylglutaryl-coenzyme A reductase directly on membranes of expanded smooth endoplasmic reticulum in rat hepatocytes", *Proc. Natl. Acad. Sci. USA*, **85**, 5264-8 (1988).
- 2) Endo, A., *et al.*: "Competitive inhibition of 3-hydroxy-3-methylglutaryl coenzyme A reductase by ML-236A and ML-236B fungal metabolites, having hypocholesterolemic activity", *FEBS LETTERS*, **72**, 323-6 (1976).



Description	Wako Cat. # (Pkg. Size)	Note
Compactin [ML-236B] , 95+% (HPLC)	033-17301 (25 mg)	MW: 390.51 (C ₂₃ H ₃₄ O ₅), CAS: 73573-88-3, Keep at 2~10°C
Lovastatin , 95+% (HPLC) *	125-04581 (25 mg)	MW: 404.55 (C ₂₄ H ₃₆ O ₅), CAS: 75330-75-5, Keep at 2~10°C
Pravastatin Sodium Salt , 95+% (HPLC)	162-19821 (25 mg) 168-19823 (100 mg)	MW: 446.51 (C ₂₃ H ₃₅ NaO ₇), CAS: 81131-70-6, Keep at 2~10°C
Simvastatin , 95+% (HPLC)	193-12051 (25 mg) 199-12053 (100 mg)	MW: 418.57 (C ₂₅ H ₃₈ O ₅), CAS: 79902-63-9, Keep at 2~10°C

*: Not available for sale in USA.

4-b Triglyceride Biosynthesis Inhibitor

Description	Wako Cat. # (Pkg. Size)	Note
Clofibrate , 98.0+% (cGC)	039-10603 (25 mL)	MW: 242.70, CAS: 637-07-0, Keep at 2~10°C
Bezafibrate , 97.0+%	022-16091 (5 g) 028-16093 (100 g)	MW: 361.82 (C ₁₉ H ₂₀ ClNO ₄), CAS: 41859-67-0, Keep at a cool place

4-c Cholesterol Catabolism Enhancer

Description	Wako Cat. # (Pkg. Size)	Note
Probucol , 97.0+% (HPLC)	162-20311 (1 g) 166-20314 (5 g) 168-20313 (10 g)	4, 4'-Isopropylidenedithio-bis (2,6-di- <i>tert</i> -butyl-phenol) C ₃₁ H ₄₆ O ₂ S ₂ : 516.84, CAS: 23288-49-5, Keep at RT

4-d Cholesterol Absorption Inhibitors

-manufactured by Tama Biochemical-

Description	Wako Cat. # (Pkg. Size)	Note
β-Sitosterol , 97+% (GC)	309-01401 (100 mg)	MW: 414.72 (C ₂₉ H ₅₀ O), CAS: 83-46-5, Keep at 2~10°C

4-e LPL Activators

Description	Wako Cat. # (Pkg. Size)	Note
Sodium Dextran Sulfate 5,000 , for Biochemistry	197-08362 (25 g) 199-08361 (100 g) 191-08365 (500 g)	Lipoprotein Lipase (LPL) activator. Keep at RT
Sodium Dextran Sulfate 5000 , for Molecular Biology	194-13402 (25 g) 196-13401 (100 g) 198-13405 (500 g)	Lipoprotein Lipase (LPL) activator / nucleic acid hybridization accelerator/ DNase and RNase activity are tested on each lot. For molecular biology. Keep at RT.
Sodium Dextran Sulfate 36,000-50,000	194-14921 (10 g) 190-14923 (100 g) 196-14925 (500 g)	Lipoprotein Lipase (LPL) activator. Keep at 2~10°C
Sodium Dextran Sulfate 500,000	193-09981 (10 g) 199-09983 (50 g) 197-09984 (100 g)	

4-f Others

Description	Wako Cat. # (Pkg. Size)	Note
L-Aminocarnitine	018-15291 (10 mg)	Fatty Acid Metabolic Inhibitor. Keep at 2~10°C
Phosphoinositide 3-Kinase p110γ , Human, recombinant	168-20531 (10 μ g)	Keep at -20°C

5. Other Biologically Active Peptides

5-a Food Intake Research

① Peptides reported food intake accelerator effect manufactured by Peptide Institute, mainly

Description	Wako Cat. # (Pkg. Size)	Note
Des-Acyl Ghrelin (Human) [4436-s] [Des- <i>n</i> -Octanoyl Ghrelin (Human)]	335-44361 (0.1mg)	Des-Octanoylated Ghrelin with Distinct Effect on Food Intake/ (Trifluoroacetate Form) (M.W. 3244.70) C ₁₄₁ H ₂₃₅ N ₄₇ O ₄₁ , Keep at -20°C
Des-Acyl Ghrelin (Rat) [4437-s] [Des- <i>n</i> -Octanoyl Ghrelin (Rat)]	332-44371 (0.1mg)	(Trifluoroacetate Form)/ (M.W. 3188.60) C ₁₃₉ H ₂₃₁ N ₄₅ O ₄₁ Des-Octanoylated Ghrelin with Distinct Effect on Food Intake, Keep at -20°C
AGRP [Agouti-Related Protein] (Human, 86-132) [4366-s]	339-43661 (0.1 mg vial)	Melanocortin Receptor-3 / 4 Antagonist, Appetite Boosting Peptide, Keep at -20°C
Dynorphin A (Human) [4108-v]	339-41081 (0.5 mg vial)	Keep at -20°C
β-Endorphin (Human) [4060-v]	335-40601 (0.5 mg vial)	
Galanin (Human) [4245-v]	336-42451 (0.5 mg vial)	
Galanin (Rat) [4244-v]	339-42441 (0.5 mg vial)	
Galanin-like Peptide (Human, 1-60) [4391-s]	332-43911 (0.1 mg vial)	Ligand for Galanin Receptor 2 / Target Peptide for Feeding Regulation by Leptin. Keep at -20°C
Ghrelin (Human) [4372-s]	337-43721 (0.1 mg vial)	Appetite stimulating peptide with energy homeostasis regulation. Keep at -20°C
Ghrelin (Rat) [4373-s]	334-43731 (0.1 mg vial)	
GRF [Growth Hormone Releasing Factor] (Human) [4127-s]	334-41271 (0.1 mg vial)	Keep at -20°C
Melanin Concentrating Hormone (Rat)	138-14641 (1 mg)	Ligand for somatostatin-like receptor 1 (SLC-1), which is one of G protein-coupled receptor family (GPCR) Orphan Receptor Peptide Ligand. / Hypothalamic appetite stimulant, Keep at -20°C

[]: Peptide Institute Product No.

5-a Food Intake Research

-Continued-

Description	Wako Cat. # (Pkg. Size)	Note
Melanin Concentrating Hormone [4369-v]	330-43691 (0.5 mg vial)	Appetite Boosting Peptide. Keep at -20°C
NPY [Neuropeptide Y] (Human, Rat) [4158-s]	339-41581 (0.1 mg vial)	Keep at -20°C
NPY [Neuropeptide Y] (Porcine, Bovine) [4162-s]	333-41621 (0.1 mg vial)	
Orexin-A (Human) [4346-s]	337-43461 (0.1 mg vial)	Appetite-Boosting Peptide. Keep at -20°C
Orexin-B (Human) [4348-s]	331-43481 (0.1 mg vial)	
Orexin-B (Rat, Mouse) [4347-s]	334-43471 (0.1 mg vial)	
Pyroglutamylated RFamide Peptide [4419-s]	334-44191 (0.1 mg vial)	Endogenous Ligand for AQ27/SP9155/GPR103. Keep at -20°C

[]: Peptide Institute Product No.

② Peptides reported food intake depressive effectmanufactured by Peptide Institute

Description	Wako Cat. # (Pkg. Size)	Note
Adrenomedulin 2 [Intermedin] (Human) [4421-s]	334-44211 (0.1 mg vial)	Cardiovascular and Renal Regulator / Suppressor for Food Intake and Gastric Emptying. Keep at -20°C
Adrenomedulin 2 [Intermedin] (Rat) [4422-s]	331-44221 (0.1 mg vial)	
Bombesin [4086-v]	339-40861 (0.5 mg vial)	Keep at -20°C
CART [Cocaine- and Amphetamine-Regulated Transcript] (Human, 55-102) [4350-s]	331-43501 (0.1 mg vial)	Food-Intake Inhibitor. Keep at -20°C
CART (Rat, 55-102) [4351-s]	338-43511 (0.1 mg vial)	
CCK-Octapeptide (26-33) [CCK-8] (Sulfated Form) (Ammonium Form) [4100-v]	333-41001 (0.5 mg vial)	Keep at -20°C
CGRP [Calcitonin Gene Related Peptide; α -CGRP] (Human) [4160-s]	339-41601 (0.1 mg vial)	
CGRP (Rat) [4163-s]	330-41631 (0.1 mg vial)	
CRF [Corticotropin Releasing Factor] (Human, Rat) [4136-s]	333-41361 (0.1 mg vial)	
CRF (Ovine) [4111-s]	336-41111 (0.1 mg vial)	
Des-Acyl Ghrelin [Des-n-Octanoyl Ghrelin] (Human) [4436-s]	335-44361 (0.1mg)	Des-Octanoylated Ghrelin with Distinct Effect on Food Intake/(Trifluoroacetate Form)(M.W. 3244.70) $C_{141}H_{235}N_{47}O_{41}$, Keep at -20°C
Des-Acyl Ghrelin [Des-n-Octanoyl Ghrelin] (Rat) [4437-s]	332-44371 (0.1mg)	(Trifluoroacetate Form)/ (M.W. 3188.60) $C_{139}H_{231}N_{45}O_{41}$ Des-Octanoylated Ghrelin with Distinct Effect on Food Intake, Keep at -20°C
GLP-1 [Glucagon- like Peptide 1] (Human, 7-36 Amide) [4344-v]	333-43441 (0.5 mg vial)	Inhibitor for Food Intake. Keep at -20°C
GLP-2 [Glucagon- like Peptide 2] (Human) [4376-v]	335-43761 (0.5 mg vial)	Keep at -20°C
α-MSH [Melanocyte Stimulating Hormone] [4057-v]	338-40571 (0.5 mg vial)	
Neuromedin S [NMS] (Human) [4426-s]	339-44261 (0.1 mg vial)	Food Intake Suppressor / Regulator of Circadian Rhythm Keep at -20°C
Neuromedin S (Rat) [4427-s]	336-44271 (0.1 mg vial)	
Neuromedin U [NMU-23] (Rat) [4377-v]	332-43771 (0.5 mg vial)	Keep at -20°C
Neurotensin [4029-v]	334-40291 (0.5 mg vial)	
Obestatin (Human) [4429-s]	330-44291 (0.1 mg vial)	Food Intake Suppressor Keep at -20°C
Obestatin (Rat, Mouse) [4430-s]	333-44301 (0.1 mg vial)	
Peptide YY [PYY] (Human, 3-36) [4400-v]	335-44001 (0.5 mg vial)	Physiological Inhibitor for Food Intake / NPY _{Y2} -Receptor Agonist, Keep at -20°C
Stresscopin (Human) [4387-s]	338-43871 (0.1 mg vial)	Selective Ligand for Type 2 CRF Receptors. Keep at -20°C
Stresscopin-Related Peptide (Human) [4388-s]	335-43881 (0.1 mg vial)	
TRH [4011-v]	332-40111 (0.5 mg vial)	Keep at -20°C

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5-a Food Intake Research

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Description	Wako Cat. # (Pkg. Size)	Note
Urocortin (Human) [4328-s]	339-43281 (0.1 mg vial)	Ligand for Type-1/Type-2 CRF Receptors. Keep at -20°C
Urocortin (Rat) [4327-s]	332-43271 (0.1 mg vial)	
Urocortin II (Mouse) [4383-s]	330-43831 (0.1 mg vial)	Selective Ligand for Type 2 CRF Receptors. Keep at -20°C

③ Othersmanufactured by Peptide Institute

Description	Wako Cat. # (Pkg. Size)	Note
GIP [Gastric Inhibitory Polypeptide] (Human) [4178-s]	331-41781 (0.1 mg)	Keep at -20°C
Neuropeptide W-30 [NPW30] (Human) [4403-v]	336-44031 (0.5 mg)	Food Intake-Regulating Peptide / GPR7/GPR8 Ligand. Keep at -20°C
Neuropeptide W-30 [NPW30] (Rat) [4404-v]	333-44041 (0.5 mg)	
Somatostatin [GIF: Growth Hormone Release Inhibiting Factor] [4023-v]	332-40231 (0.5 mg)	Keep at -20°C

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