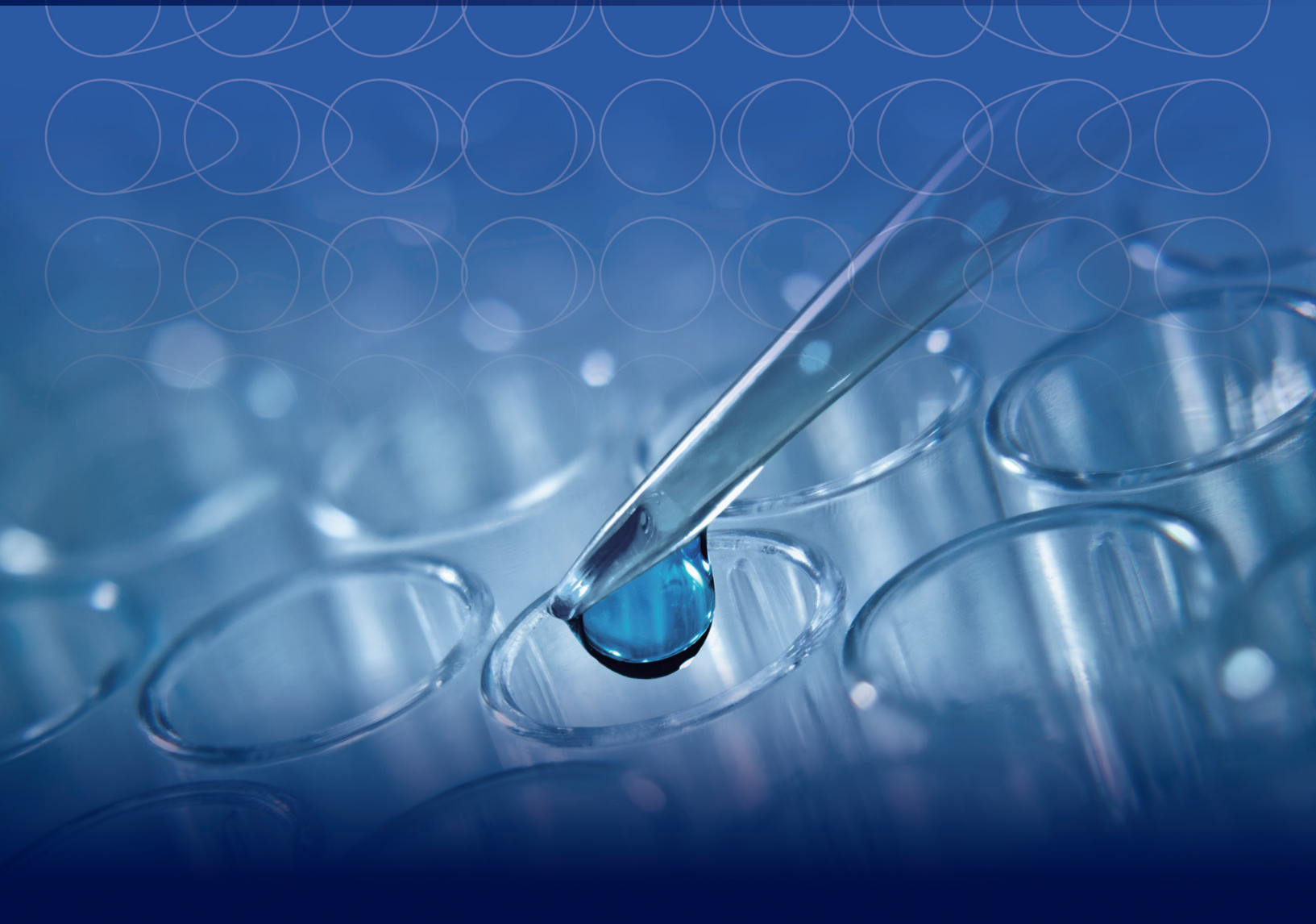


Diabetes • Metabolism

Research Reagents



Diabetes • Metabolism Related Research Reagents

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GLP-1 ELISA Kit

GLP-1 is the gastrointestinal peptide hormone secreted from intestinal L cells, and shows the hypoglycemic action through the enhancement of insulin secretion and the suppression of glucagon secretion by the sugar stimulus. The report has been issued that GLP-1 is useful for the treatment of type 2 diabetes as the new therapeutic agent for diabetes.

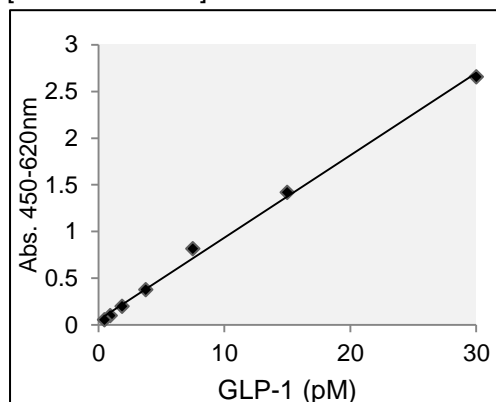
GLP-1 ELISA Kit Wako, High Sensitive (Total GLP-1 assay)

GLP-1 ELISA Kit Wako, High Sensitive, is a sandwich ELISA system for quantitative measurement of mouse/rat GLP-1.

[Kit Contents]

	Components	Amount
1	Antibody-coated Plate	1 plate
2	GLP-1 Standard	1 bottle
3	Buffer Solution	60 mL/1 bottle
4	Biotinylated Anti GLP-1 Antibody Solution	100 µL/1 vial
5	Peroxidase-conjugated Streptavidin Solution	100 µL/1 vial
6	TMB Solution	12 mL/1 bottle
7	Stop Solution	12 mL/1 bottle
8	Wash Solution (x10)	100 mL/1 bottle
9	Plate Seal	4 sheets

[Standard Curve]



[Performance]

- Concentration of the standard solution : 0.94-30pM
- Dynamic range : 4.7-150pM *Case of 10 µL
- Sample volume : 10µL
- Measure time : 4 hour
- Cross-reactivity : mouse, rat

[Reference]

- 1) Harada, K. *et al.*: *Biochem. Biophys. Res. Commun.*, **501**, 1009(2018)
- 2) Io, F. *et al.*: *Eur. J. Pharmacol.*, **853**, 136(2019)
- 3) Harada, K. *et al.*: *Biochem. Biophys. Res. Commun.*, **500**, 723(2018)

Product Code	Product	Grade	Pack
299-75501	GLP-1 ELISA Kit Wako, High Sensitive	for Diabetes Research	96 tests

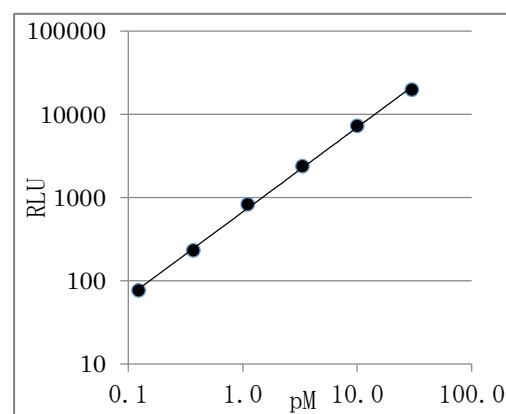
Active GLP-1 ELISA Kit Wako, Chemiluminescent

Active GLP-1 ELISA kit Wako, Chemiluminescent is a sandwich ELISA system for quantitative measurement of mouse rat active GLP-1.

[Kit Contents]

	Components	Amount
1	Antibody-coated Plate	1 plate
2	GLP-1 Standard	1 bottle
3	Buffer Solution	60 mL/1 bottle
4	Anti GLP-1 Antibody, Biotin-conjugated	100 µL/1 vial
5	Peroxidase-conjugated Streptavidin Solution	100 µL/1 vial
6	Luminescent Reagent 1	6 mL/1 bottle
7	Luminescent Reagent 2	6 mL/1 bottle
8	Wash Solution (x10)	100 mL/1 bottle
9	Sample Diluent	20 mL/1 bottle
10	Plate Seal	3 sheets

[Standard Curve]



[Performance]

- Analytes available : Active GLP-1 (GLP-1(7-36amide) and (GLP-1 7-37))
- Standard curve range : 0.123-30.0 pM
- Assay range : 0.615 -150pM
- Sample : Plasma
- Sample volume : 10uL
- Assay time : 3.5 hour
- Species Reactivity : Mouse and Rat
- Detection Method : Chemiluminescence

Product Code	Product	Grade	Pack
293-79301	Active GLP-1 ELISA Kit Wako, Chemiluminescent	for Diabetes Research	96 tests

LBIS GLP-1 (Active) ELISA Kit

LBIS GLP-1 (Active) ELISA Kit is a sandwich ELISA system for quantitative measurement of mouse/rat active GLP-1 (7-36) amide.

[Kit Contents]

1 Antibody-coated Plate	1 plate
2 GLP-1 Standard	1 bottle
3 Buffer Solution	60 mL/1 bottle
4 Biotinylated Anti GLP-1 Antibody Solution	100 µL/1 vial
5 HRP-conjugated Streptavidin	100 µL/1 vial
6 TMB Solution	12 mL/1 bottle
7 Stop Solution	12 mL/1 bottle
8 Wash Solution (x10)	100 mL/1 bottle
9 Plate Seal	4 sheets

[Cross-reactivity]

	Name	Cross-reactivity (%)
Mouse/Rat	GLP-1 (7-36)amide	100
	GLP-1 (7-37)	< 0.1
	GLP-1 (1-37)	-
	GLP-1 (9-36) amide	-
	GLP-2	-
	Glucagon (1-29)	-

[Performance]

- Assay range : 2.3~75pM
- TestTime : 5hours
- Sample volume:10µL
- Samples:Mouse/Rat Serum, Plasma, Cell Culture Supernates

[Reference]

- 1) Suga, T. *et al.*: *Mol. Metab.*, **19**, 1(2019)
- 2) Lee, J. *et al.*: *Nutr. Res. Pract.*, **12**, 469(2018)
- 3) Yamada, C. *et al.*: *Mol. Neurobiol.*, **55**, 7555(2018)

Product Code	Product	Maker No.	Pack
637-15129	LBIS GLP-1(Active) ELISA Kit	AKMGP-011	96 tests

LBIS Mouse/Rat HMW Adiponectin ELISA Kit

Adiponectin is one of cytokines secreted from adipocyte (adipocytokines, adipokines), and controls lipid metabolism and insulin sensitivity. Adiponectin is an important substance showing anti-diabetic, anti-atherosclerotic, and anti-inflammatory actions.

Mouse/Rat HMW Adiponectin ELISA Kit is a sandwich ELISA system for quantitative measurement of mouse or rat High Molecular Weight Adiponectin.

[Kit Contents]

1 Antibody-coated Plate	1 plate
2 Standard Adiponectin (2000 ng/mL)	200µL/1 vial
3 Buffer Solution	60 mL/1 bottle
4 HRP-labeled anti-adiponectin antibody	100 µL/1 vial
6 TMB Solution	12 mL/1 bottle
7 Stop Solution	12 mL/1 bottle
8 Wash Solution (x10)	100 mL/1 bottle
9 Plate Seal	3 sheets

[Cross-reactivity]

	Name	Cross-reactivity (%)
Mouse	Adiponectin (HMW)	100
	Adiponectin (Hexamer)	< 5
	Adiponectin (Trimer)	-
	Adiponectin (Monomer)	-
Rat	Adiponectin (HMW)	100
	Adiponectin (Monomer)	-

[Performance]

- Assay range: 3.13~200ng/mL
- TestTime : 4hours
- Sample volume:10µL
- Samples:Mouse/Rat Serum, Plasma

[Reference]

- 1) Kim, TH. *et al.*: *Eur. J. Pharmacol.*, **830**, 95(2018)
- 2) Watanabe, K. *et al.*: *Obes. Surg.*, **28**, 1532(2018)
- 3) Tobita, H. *et al.*: *Mol. Med. Rep.*, **17**, 6840(2018)

Product Code	Product	Maker No.	Pack
638-13079	LBIS Mouse/Rat HMW Adiponectin ELISA Kit	AKMAN-011	96 tests

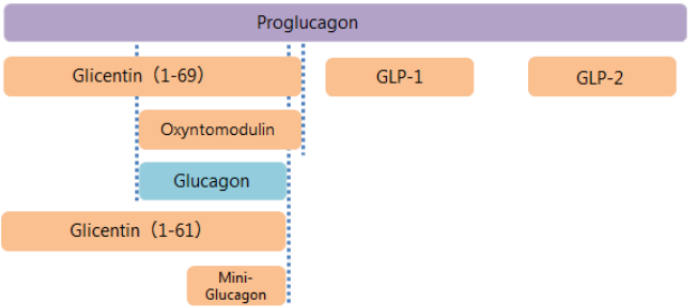
Glucagon ELISA Kit

Glucagon is a peptide hormone comprising 29 amino acids and secreted from α cells in the islets of Langerhans. Physiologically, it acts on liver to degrade glycogen to glucose and increase blood glucose level. Together with insulin, it plays an important role in maintaining blood glucose level.

Glucagon ELISA Kit Wako (Sandwich method)

This kit uses sandwich ELISA with a monoclonal antibody that recognizes N-terminal and a monoclonal antibody that recognizes C-terminal of glucagon. The assay with this kit shows little cross-reactivity, if any, to glucagon-related peptides such as glicentin, oxyntomodulin, GLP-1 or GLP-2.

Glucagon and glucagon-like peptide



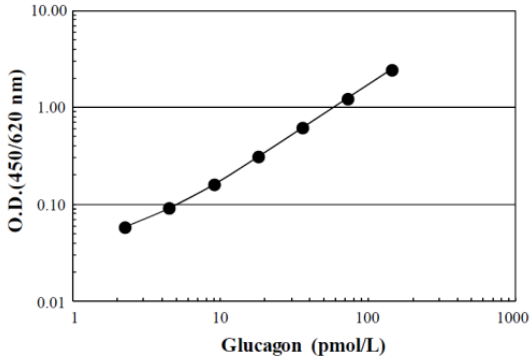
[Cross-reactivity]

Name	Cross-reactivity (%)
Glicentin(1-69) (human)	0.68
Glicentin(1-69) (rat)	0.96
Glicentin(1-69) (mouse)	0.97
Glicentin(1-61) (human)	0.95
Glicentin(1-61) (rat)	not confirmed
Glicentin(1-61) (mouse)	not confirmed
Oxyntomodulin (human, rat and mouse)	0.64
Mini-glucagon (human, rat and mouse)	N.D.

[Kit Contents]

1 Antibody-coated Plate	1 plate
2 Glucagon Standard	0.287pmol/ 1 vial
3 HRP conjugated Anti Glucagon Antibody Solution	12 mL/1 bottle
4 TMB Solution	12 mL/1 bottle
5 Stop Solution	12 mL/1 bottle
6 Buffer	12 mL/1 bottle
7 Wash Solution (x20)	50 mL/1 bottle
8 Plate Seal	2 sheets

[Standard Curve]



[Performance]

- Assay range: 7.8~500pg/mL
- TestTime : 20hours
- Sample volume:10μL
- Samples:Human/Mouse/Rat Serum,Plasma,Cell culture medium

Product Code	Product	Grade	Pack
292-80001	Glucagon ELISA Kit Wako (Sandwich method)	for Obesity Research	96 tests

PYY ELISA Kit

PYY is a gastrointestinal peptide hormone consisting of 36 amino acid residues. It is mainly released from endocrine cells localizing in the intestinal tract after food ingestion, and inhibits appetite through the vagus nerve and blood.

Mouse/Rat PYY ELISA Kit Wako

This ELISA kit is used for the quantitative determination of mouse and rat PYY in plasma and serum samples.

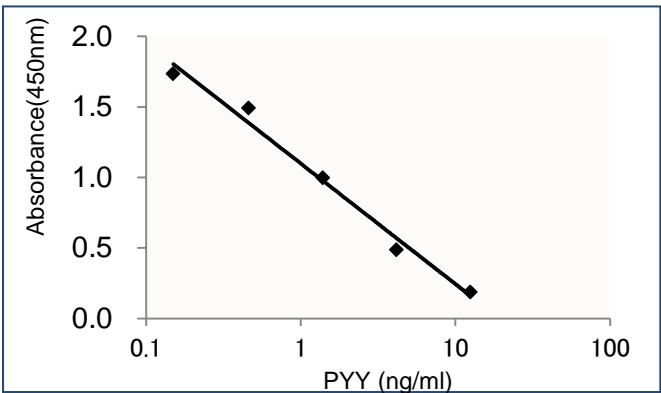
[Performance]

- Assay range: 0.15~12.5ng/mL
- TestTime : 20hours
- Sample volume:25μL
- Samples:Mouse/Rat Serum,Plasma

[Kit Contents]

1	Antibody-coated Plate	1 plate
2	Mouse/Rat PYY Standard	12.5ng/ 1 vial
3	Biotinylated Mouse/Rat PYY	1 vial
4	Anti Mouse/Rat PYY , Rabbit	8.5mL/1 bottle
5	HRP Labeled Streptavidin Solution	12 mL/1 bottle
6	Enzyme Substrate Solution	12 mL/1 bottle
7	Stop Solution	12 mL/1 bottle
8	Buffer	25 mL/1 bottle
9	Wash Solution (concentrated)	50 mL/1 bottle
10	Plate Seal	3 sheets

[Standard Curve]



[Reference]

1)Watanabe, K. *et al.*: *PLoS One.*, **13**, e0202083(2018)
2) Nakatani, A. *et al.*: *Biochem. Biophys. Res. Commun.*, **501**, 955(2018)
3) Miyamoto, J. *et al.*: *PLoS One.*, **13**, e0196579(2018)

Product Code	Product	Grade	Pack
291-73501	Mouse/Rat PYY ELISA Kit Wako	for Obesity Research	96 tests

Insulin ELISA Kit

Insulin is a peptide hormone secreted from B cells of islet of Langerhans in the pancreas with a molecular weight of about 5800 and pI 5.4. It is consisted of 2 chains, A and B. It has 3 disulfide bonds formed between A6 and A11, A7 and B7, and A20 and B19.

FUJIFILM Wako Shibayagi Corporation offers a variety of kits for the measurement of insulin for your purposes. Select a kit that fits your researches.

Type	U type	U-E type	S type		RTU type		T type		H type		Concentration (pg/mL)
Animal	Mouse	Rat	Mouse	Rat	Mouse	Rat	Mouse	Rat	Mouse	Rat	
Test time	3 hours	3 hours	3 hours	2h 50m	2h 50m	2h 50m	3 hours	3 hours	3 hours	3 hours	
Assay Range											200,000
									●	●	100,000
					●	●			●	●	12,000
				●	●	●	●	●	●	●	10,000
			●	●	●	●	●	●	●	●	5,000
	●	●	●	●	●	●	●	●	●	●	2,500
	●	●	●	●	●	●	●	●	●	●	500
	●	●	●	●	●	●	●	●			156
	●	●	●	●	●	●					100
	●	●	●								78
	●	●									39
											30

- U type, U-E type: High sensitivity type. Suitable for low insulin concentration like after fasting period.
- S type: Reduce cross-reaction with proinsulin, specific detect of insulin.
- RTU type: Contains 6 concentration standard, antibody solution, POD • Avidin solution that are diluted and ready to use.
- T type: Normal type (standard kit for insulin analysis).
- H type: For analysis of highly concentrated insulin sample.

Product Code	Maker No.	Product	Assay Range	Package
637-03419	AKRIN-031	LBIS Mouse Insulin ELISA Kit (U-type)	39-2,500pg/mL	96 tests
630-05589	AKRIN-130	LBIS Rat Insulin ELISA Kit (U-E type)	39-2,500pg/mL	96 tests
630-07289	AKRIN-011S	LBIS Mouse Insulin ELISA Kit (S-type)	78-5,000pg/mL	96 tests
631-07199	AKRIN-010S	LBIS Rat Insulin ELISA Kit (S-type)	0.1-10ng/mL	96 tests
633-23919	AKRIN-011RU	LBIS Mouse Insulin ELISA Kit(RTU)	100-12,000pg/mL	96 tests
630-24149	AKRIN-010RU	LBIS Rat Insulin ELISA Kit(RTU)	100-12,000pg/mL	96 tests
638-01489	AKRIN-011T	LBIS Mouse Insulin ELISA Kit	0.156-10ng/mL	96 tests
631-01479	AKRIN-010T	LBIS Rat Insulin ELISA Kit	0.156-10ng/mL	96 tests
634-10379	AKRIN-011H	LBIS Mouse Insulin ELISA Kit(H-type)	0.5-100ng/mL	96 tests
637-10629	AKRIN-010H	LBIS Rat Insulin ELISA Kit(H-type)	0.5-100ng/mL	96 tests

Proinsulin ELISA Kit

Proinsulin, known as a precursor of insulin, is produced in B-cells of islet of Langerhans in the pancreas.

Mouse/Rat Proinsulin ELISA Kit

Mouse/Rat Proinsulin ELISA Kit is a sandwich ELISA system for quantitative measurement of total mouse/rat proinsulin.

[Performance]

- Assay range: 7.35~471.5pg/mL
- TestTime : 5hours
- Sample volume:10μL
- Samples:Mouse/Rat Serum,Plasma

[Kit Contents]

1 Antibody-coated Plate	1 plate
2 GLP-1 Standard	1 bottle
3 Buffer Solution	60 mL/1 bottle
4 Biotinylated Anti GLP-1 Antibody Solution	100 μL/1 vial
5 HRP-conjugated Streptavidin	100 μL/1 vial
6 TMB Solution	12 mL/1 bottle
7 Stop Solution	12 mL/1 bottle
8 Wash Solution (x10)	100 mL/1 bottle
9 Plate Seal	4 sheets

[Reference]

- 1) Matsunaga, K. *et al.*: *J. Cell. Sci.*, **130**, 541(2017)
- 2) Nishi, K. *et al.*: *Diabetes.*, **65**, 3015(2016)
- 3) Machida, M. *et al.*: *Biol. Pharm. Bull.*, **38**, 587(2015)

[Cross-reactivity]

Sample	Substance	Cross reaction(%)
Mouse	Proinsulin	100
	Insulin	—
	C-peptide	—
	Leptin	—
Rat	Proinsulin	100
	Insulin	—
	C-peptide	—
	Leptin	—
Human	Proinsulin	+
	Insulin	—
	C-peptide	—

Product Code	Product	Maker No.	Pack
630-23049	LBIS Mouse/Rat Proinsulin ELISA Kit	AKMPI-111	60 tests

C-peptide ELISA Kit

C-peptide is released into the blood in approximately equimolar to insulin by the processing of proinsulin, a precursor of insulin. By the measurement of C-peptide concentration in the blood, it is possible to know the insulin secretory potency of pancreatic β cells in the case during insulin administration or insulin antibodies existing.

C-peptide (U-type) series

This product is ELISA kit measurable specifically of C-peptide in the mouse or rat specimen.

[Performance]

- Assay range: 46.9~3,000pg/mL
- TestTime : 5hours
- Sample volume:10 μ L
- Samples:Mouse/Rat Serum,Plasma

[Reference]

Mouse(U-type) (AKRCP-031)

- 1) Motoyama, H. *et al.*: *PLoS One.*, **13**, e0197175(2018)
- 2) Joo, E. *et al.*: *Diabetes.*, **66**, 868(2017)

Rat(U-type) (AKRCP-030)

- 1) Park, JH. *et al.*: *J. Ethnopharmacol.*, **234**, 172(2019)
- 2) Park, C. *et al.*: *Phytother. Res.*, **32**, 2541(2018)
- 3) Niibo, M. *et al.*: *J. Dairy. Sci.*, **102**, 997(2018)

Product Code	Product	Maker No.	Pack
635-07239	Mouse C-peptide ELISA Kit (U-type)	AKRCP-031	96 tests
633-07279	Rat C-peptide ELISA Kit (U-type)	AKRCP-030	96 tests

Leptin ELISA Kit

Leptin was first found in mutant obese mouse and proved to be an important hormone relating to energy balance through controlling appetite and metabolism.

Mouse Leptin ELISA Kit

Mouse Leptin ELISA Kit is a sandwich ELISA system for quantitative measurement of mouse leptin.

[Performance]

- Assay range: 103~25,000pg/mL
- TestTime : 3hours
- Sample volume:10 μ L
- Samples:Mouse Serum,Plasma

[Reference]

- 1) Bong-Hoi, Choi. *et al.*: *PLoS One.*, **13**, e0200336(2018)
- 2) Tahara, A. *et al.*: *Eur. J. Pharmacol.*, **81**, 545(2018)
- 3) Joo, E. *et al.*: *Diabetes.*, **66**, 868(2017)

Product Code	Product	Maker No.	Pack
631-10389	LBIS Mouse Leptin ELISA Kit	AKRLP-011	96 tests

GH ELISA Kit

Rat GH ELISA Kit

GH (Growth hormone) is a simple protein mostly produced by acidophilic cells (somatotrophs) of the anterior pituitary gland. GH shows biphasic action on glucose metabolism. GH first shows insulin-like action tentatively, but later induces lipolysis and increase of free fatty acids in the adipocytes, upraise of blood glucose level, suppression of glycolysis, increase of glycogen content in muscle, and lowering of insulin sensitivity in peripheral tissues.

Rat GH ELISA Kit is a sandwich ELISA system for quantitative measurement of rat GH (GrowthHormone).

[Performance]

- Assay range: 313 ~ 20,000pg/mL
- TestTime : 5hours
- Sample volume:5μL
- Samples:Rat Serum,Plasma

[Reference]

- 1) Ando, H. *et al.*: *Endocrinology.*, **157**, 463(2016)
- 2) Sato, S. *et al.*: *Lofe. Sci.*, **89**, 962(2011)
- 3) Jiang, L. *et al.*: *Mol. Cell. Biochem.*, **343**, 249(2010)

Product Code	Product	Maker No.	Pack
639-13749	LBIS Rat GH ELISA Kit	AKRGH-010	96 tests

LH ELISA Kit

LH(Luteinizing Hormone) is produced and stored in basophilic cells called gonadotrophs in the anterior pituitary gland. LH is found in all vertebrates from fishes to mammals. Some reports indicated the presence of LH-like substance in the testis. Rat LH ELISA Kit (S-type) is a sandwich ELISA system for quantitative measurement of rat LH.

[Performance]

- Assay range: 1.565 ~ 50 ng/mL
- TestTime : 4hours
- Sample volume:10μL
- Samples:Rat Serum,Plasma

[Reference]

- 1) Satou, K. *et al.*: *J. Reprod. Dev.*, **63**, 199(2017)
- 2) Takeda, T. *et al.*: *J. Toxicol. Sci.*, **42**, 13(2017)
- 3) Tomori, Y. *et al.*: *Neurosci. Res.*, **117**, 35(2016)

Product Code	Product	Maker No.	Pack
630-23929	LBIS Rat LH ELISA Kit (S-type)	AKRLH-010S	96 tests

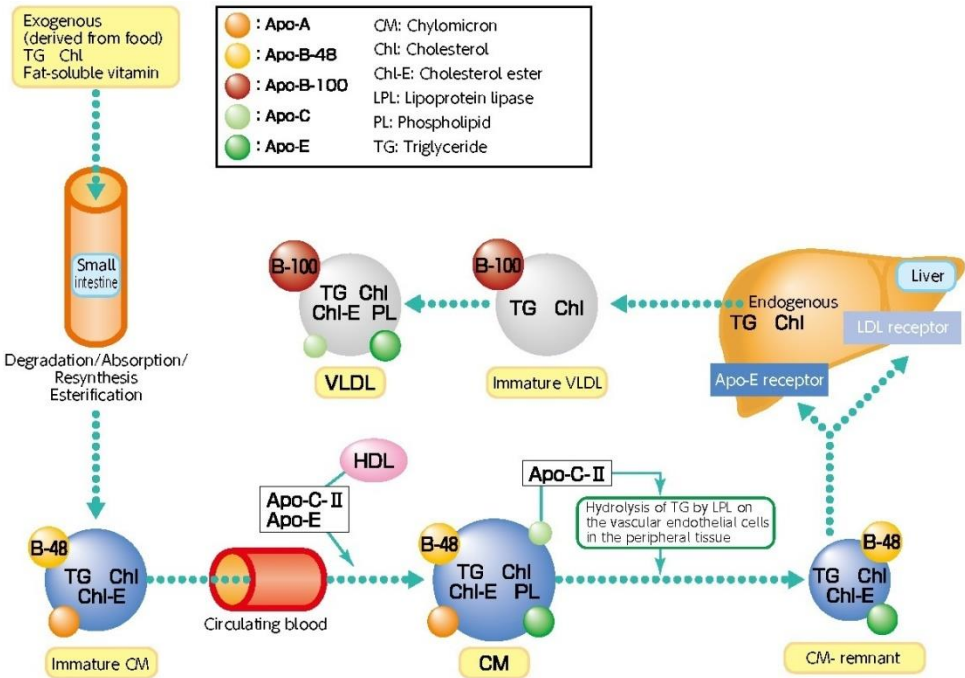
Apolipoprotein B-48

Apolipoprotein B-48 is a specific structural protein in lipoproteins derived from the small intestine, such as chylomicron (CM) and chylomicron remnants. Since one role of CM is to transfer exogenous lipids derived from food to the liver or peripheral tissues, the measurement of Apo B-48 is considered a best marker for observation of exogenous lipid transportation after food intake.

LBIS Human Apo B-48 ELISA Kit

[Performance]

- Assay range: 2.5 ~ 160ng/mL
- TestTime : 2 hours 50 min
- Sample volume:50µL(diluted)
- Samples:Human Serum,Plasma



[Reference]

1)Blom,D. et al.: *J Clin Lipidol.*, **12**,1234(2018)
2)Drouin-Chartier,J. et al.: *J Lipid Res.*, **59**,1501(2018)
3)Bjornshave,A. et al.: *Eur J Nutr.*, **58**,755(2018)
4)Schioldan,A. et al.: *Eur J Nutr.*, **57**,795(2018)
5)Bjornshave,A. et al.: *Nutrients.*, **10**,E122(2018)

[Kit Contents]

1 Anti-apoB-48 coated Plate	1 plate
2 Standard human apo B-48	1 vial
3 Buffer Solution	60 mL/1 bottle
4 Biotinylated Anti Apo B-48 Antibody Solution	100 µL/1 vial
5 HRP-conjugated Streptavidin	100 µL/1 vial
6 TMB Solution	12 mL/1 bottle
7 Stop Solution	12 mL/1 bottle
8 Wash Solution (x10)	100 mL/1 bottle
9 Plate Seal	4 sheets

Product Code	Product	Maker No.	Pack
637-10641	LBIS Human Apo B-48 ELISA Kit	AKHB48	96 tests

LBIS Rabbit Apo B-48 ELISA Kit

[Performance]

- Assay range: 19.5 ~ 1250 ng/mL
- TestTime : 2 hours 50 min
- Sample volume:50µL(diluted)
- Samples:Rabbit Serum,Plasma

[Kit Contents]

1 Anti-apo B-48 coated Plate	1 plate
2 Standard rabbit apo B-48	1 vial
3 Buffer Solution	60 mL/1 bottle
4 Biotinylated Anti Apo B-48 Antibody	100 µL/1 vial
5 HRP-conjugated Streptavidin	100 µL/1 vial
6 TMB Solution	12 mL/1 bottle
7 Stop Solution	12 mL/1 bottle
8 Wash Solution (x10)	100 mL/1 bottle
9 Plate Seal	4 sheets

Product Code	Product	Maker No.	Pack
622-04909	LBIS Rabbit Apo B-48 ELISA Kit	AKRB48	96 tests

Orexin A ELISA Kit Wako

Given that the level of orexin A in the cerebrospinal fluid is significantly decreased in patients with narcolepsy, a type of sleep disorder, orexin A is thought to play an important role in controlling sleep functions. The level of orexin A has been measured conventionally using radioimmunoassay. However, due to the need for radioisotopes (RI), the measurements could only be performed at dedicated institutions with proper equipment.

This product is an ELISA kit that enables simple measurements of orexin A from human cerebrospinal fluid, as well as rat cerebrospinal fluid, serum, and plasma without the need for radioisotope.

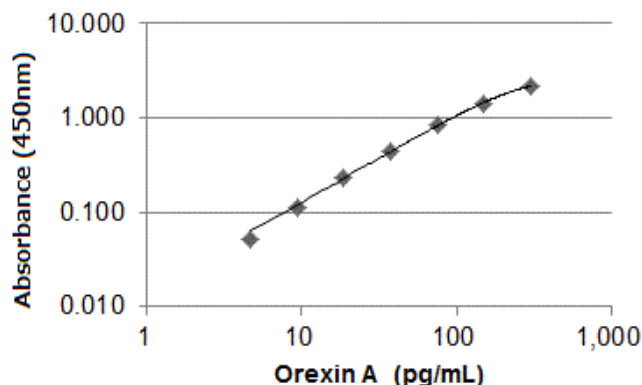
[Performance]

- Assay range: 4.69 ~ 300 pg/mL
- TestTime : About 20 hours
- Sample volume: 25µL
- Samples: human cerebrospinal fluid, rat cerebrospinal fluid, rat plasma, rat serum

[Reference]

Ono, T., et al.: *Psychiatry Clin Neurosci.*, **72**, 11, 849 (2018).

[Standard Curve]

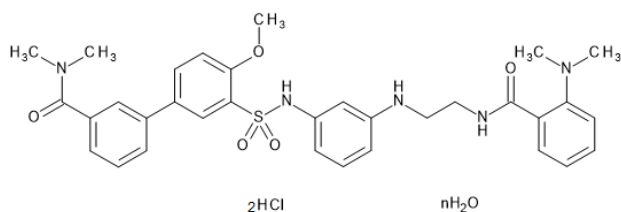


Product Code	Product	Grade	Pack
293-79801	Orexin A ELISA Kit Wako	for Immunochemistry	96 tests

YNT-185 Dihydrochloride Hydrate

YNT-185·2HCl is non-peptide orexin receptor 2 (OX2R) agonist. Orexins are a family of neuropeptides, which are secreted by orexin-producing nerve present in the hypothalamus. There are two variants, orexin receptors exist as two types of receptors, type 1 and type 2. In particular, the orexin 2 receptor is involved in sleep-wake regulation, and orexin deficiency in the brain causes narcolepsy, a sleep disorder manifesting as an unbearable sleepiness during the day. Although it has been reported that intraventricular administration of orexin leads to symptom alleviation in narcolepsy mouse models, therapeutic effects cannot be expected unless it is administered into the brain, due to orexin being a peptide and being unable to pass through the blood-brain barrier. Intraventricular or intraperitoneal administration of YNT-185·2HCl has been shown to extend wake time, and has also been reported to improve the symptoms of narcolepsy mouse models.

[structural formula]



[Reference]

- 1) Nagahara, T., et al.: *J. Med. Chem.*, **58**, 7931 (2015).
- 2) Irukayama-Tomobe, Y., et al.: *Proc. Natl. Acad. Sci. USA*, **114**(22), 573(2017).
- 3) Toyama, S., et al.: *Anesthesiology*, **128**, 992 (2018).
- 4) Yamamoto, K., et al.: *Naunyn Schmiedebergs Arch. Pharmacol.* (2019). doi: 10.1007/s00210-019-01646-x.

Product Code	Product	Grade	Pack
254-00641	YNT-185 Dihydrochloride Hydrate	for Cellbiology	5mg
250-00643			100mg

Albumin series

FUJIFILM Wako Shibayagi provides a unique lineup of ELISA kits for evaluation of urine, serum and plasma albumin for rat and mouse model organism. For high throughput analysis TIA reagents for the application on clinical chemistry autoanalyser are available.

Albumin (Mouse,Rat) ELISA Kit

[Performance]

- Assay range: 50 ~ 1,000ng/mL
- TestTime : 2 hours 20 min
- Sample volume: 5µL (diluted)
- Samples: Mouse, Rat Serum, Plasma

[Reference]

Albumin Mouse ELISA Kit

- 1) Mizukami, K. *et al.*: *Naunyn. Schmiedeberg's. Arch. Pharmacol.*, **391**, 1319(2018)
- 2) Rhee, H. *et al.*: *Kidney. Res. Clin. Pract.*, **37**, 222(2018)
- 3) Ishikawa, H. *et al.*: *Biosci. Biotechnol. Biochem.*, **82**, 515(2018)

Albumin Rat ELISA Kit

- 1) Kanno, M. *et al.*: *Nephrology.*, **23**, 1046(2018)
- 2) Ishibashi, Y. *et al.*: *Horm. Metab.*, **48**, 613(2016)
- 3) Takeshige, Y. *et al.*: *Hypertens.*, **39**, 415(2016)

Product Code	Product	Maker No.	Pack
638-04309	LBIS Mouse Albumin ELISA Kit	AKRAL-121	96 tests
635-04319	LBIS Rat Albumin ELISA Kit	AKRAL-120	96 tests

Turbidimetric Immuno Assay Kit (TIA Kit)

[Performance]

- Assay range: 6.17 ~ 500µg/mL
- TestTime : 10 min
- Sample volume: 6µL
- Samples: Mouse, Rat Urine, Plasma

[Reference]

LBIS Mouse Urinary Albumin Assay Kit

- 1) Haku, S. *et al.*: *Biomed. Res. Int.*, **2018**, 2817045(2018)
- 2) Iwashita, Y. *et al.*: *Am. J. Physiol. Renal. Physiol.*, **310**, F1206(2016)
- 3) Zhu, K. *et al.*: *Free. Radic. Biol. Med.*, **83**, 21(2015)

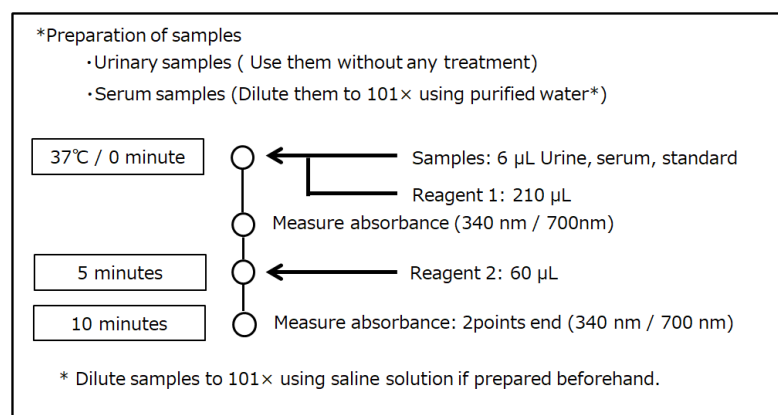
LBIS Rat Urinary Albumin Assay Kit

- 1) Tatsuyori, M. *et al.*: *Eur. J. Pharmacol.*, **756**, 85(2015)
- 2) Ruixia, M. *et al.*: *Int. J. Clin. Exp. Pathol.*, **8**, 14063(2015)
- 3) Sakai, M. *et al.*: *Eur. J. Pharmacol.*, **761**, 109(2015)

[Assay procedure]

For Hitachi 7180 autoanalyzer

*Note that operation of autoanalyzer is different depending on the type of machines



Product Code	Product	Maker No.	Pack
632-25569	LBIS Mouse Urinary Albumin Assay Kit (S-type)	AKRAL-021S	60 tests
638-25309	LBIS Rat Urinary Albumin Assay Kit (S-type)	AKRAL-020S	60 tests

LabAssay™ Series

The LabAssay™ Series is a collection of biochemical assay kits for analyzing samples from humans, mice, and other animals. Since analyses are performed in microtiter plates, many samples can be concurrently evaluated, and only small sample amounts are needed.

LabAssay™ Overview

Code No.	Measuring factor	Animal species	Sample	Standard curve range	Sample amount	Measuring time	Pkg size
295-78901	Ammonia nitrogen	Mouse, Rat, Human	Blood	100~400µg/dL	70µL	approx. 70min	700 tests
291-58601	ALP	Mouse, Human	Serum	0.0625~0.5mmol/L	20µL	approx. 20min	900tests
294-65801	Cholesterol	Mouse, Human	Serum	50~592.2mg/dL	2µL	approx. 10min	1,000tests
290-65901	Creatinine	Mouse, Human	Serum	2.5~10mg/dL	50µL	approx. 40min	500test
298-65701	Glucose	Mouse, Human	Serum	50~500mg/dL	2µL	approx. 10min	1,000tests
294-63601	NEFA	Mouse, Human	Serum	0.5~1.97mEq/L ※Oleic acid 1mEq=1mmol	4µL	approx. 20min	750tests
296-63801	Phospholipid	Mouse, Human	Serum	150~596.1mg/dL	2µL	approx. 10min	1,300tests
290-63701	Triglyceride	Mouse, Human	Serum	100~888mg/dL	2µL	approx. 10min	1,000tests

LabAssay™ Ammonia

Ammonia is mainly produced in the intestine or the kidney. Ammonia produced in the body is converted to urea through a series of reactions known as the urea cycle in the liver and eliminated through urine.

Assay Principle (Modified Fujii-Okuda Method)

Ammonia is converted to Dioxydiphenylamine by the reaction of Phenol and Sodium Pentacyanonitrosyl ferrate(III). A reaction of the Dioxydiphenylamine with Sodium Hypochlorite produces Indophenol, which pigments blue, under alkaline conditions. LabAssay™ Ammonia is a kit used for the quantitative determination of ammonia nitrogen in samples by measuring absorbance of the blue color.

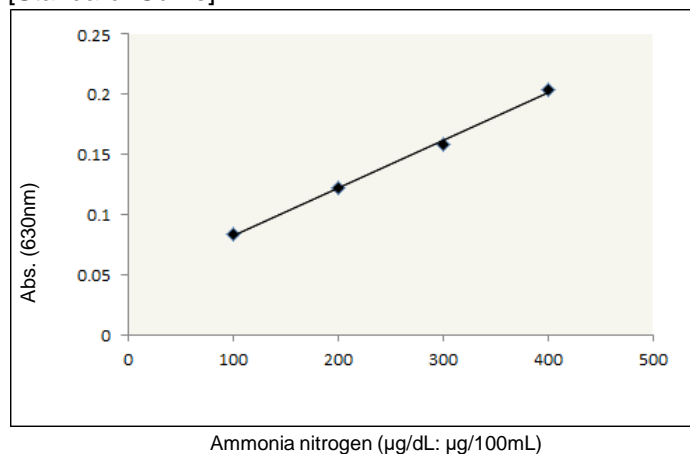
[Kit Contents]

1	Deproteinizing	100mL×1vial
2	Chromogen Reagent A	50mL×1vial
3	Chromogen Reagent B	25mL×1vial
4	Chromogen Reagent C	50mL×1vial
5	Ammonia Standard Solution	15mL×1vial
6	Dilute olution for Standard	20mL×1vial

[Performance]

- Standard curve range 100~400µg/dL(µg/100mL)
- Measurement time approx. 70 minutes
- Amount of sample 70µL
- Measurement wavelength 630nm

[Standard Curve]



[Reference]

- 1) Inokuma, K. *et al.*: *Microb. Cell Fact.*, **17**, 153 (2018).

Code No.	Product name	Grade	Package size	Storage Condition
295-78901	LabAssay™ Ammonia	for Cellbiology	700 tests	Keep at 2-10°C

LabAssay™ Triglyceride

Triglycerides are neutral fats consisting of three fatty acids esterified to a glycerol backbone. There are triglycerides, cholesterol, phospholipids, free fatty acids and fat-soluble vitamins as lipid-soluble substances in the blood.

Assay Principle

Triglycerides are converted to glycerol-3-phosphate by lipoprotein lipase and glycerolkinase. Hydrogen peroxide, which is produced by a reaction between the glycerol-3-phosphate and glycerol-3-phosphate oxidase(GPO), promotes oxidative condensation of N-ethyl-N- (2-hydroxy-3-sulfopropyl) -3,5-dimethoxyaniline sodium salt(DAOS) with 4-aminoantipyrine. LabAssay™ Triglyceride can be used to detect triglycerides concentration in samples by measuring absorbance of a blue color which is generated by the oxidative condensation reaction.

[Kit Contents]

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

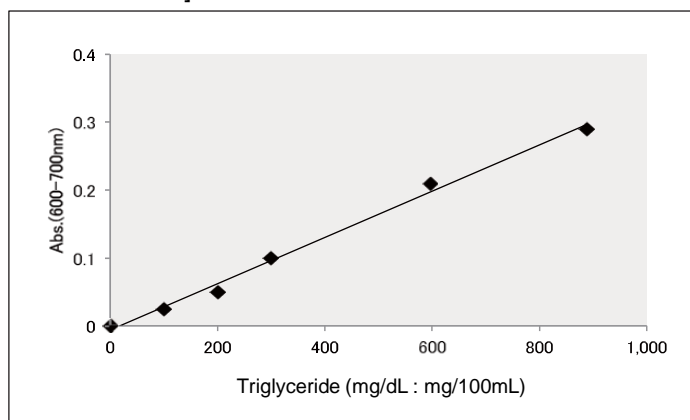
[Performance]

- Standard curve range 100~888mg/dL(mg/100mL)
- Measurement time approx. 10 minutes
- Amount of sample 2μL
- Measurement wavelength 600nm(Main), 700nm(Sub)

[Reference]

- 1) Gao, F. *et al.* : *Evid. Based Complement. Alternat. Med.*, **2015**, 801291(2015). ※Extraction liquid of rat kidney
- 2) Funakoshi, T. *et al.* : *Biochem. Biophys. Rep.*, **13**, 39(2018). ※Rat primary muscle satellite cell
- 3) Moser, V. A. and Pike, C. J. : *eNeuro*, **4**, e0077-17(2017). ※Mouse plasma
- 4) Fujii, N. *et al.* : *Aging Cell*, **16**, 508(2017). ※Rat plasma
- 5) Oh, T-W., *et al.* : *J. Exerc. Nutrition Biochem.*, **19**, 247(2015). ※Rat plasma
- 6) Fan, Y. *et al.* : *J. Biomed. Sci.*, **23**, 56(2016). ※Mouse serum

[Standard Curve]



Code No.	Product name	Grade	Package size	Storage Condition
290-63701	LabAssay™ Triglyceride	for Cellbiology	1,000 tests	Keep at 2-10°C

LabAssay™ Phospholipid

Phospholipids are known as not only as major component of cell membranes but also perform vital functions within the body such as emulsification and absorption of fats or coagulation of blood.

Assay Principle (Choline Oxidase · DAOS method)

Phospholipids are hydrolyzed by Phospholipase D to release hydrogen peroxide. The formed hydrogen peroxide promotes oxidative condensation of N-ethyl-N- (2-hydroxy-3-sulfopropyl) -3,5-dimethoxyaniline sodium salt (DAOS) with 4-aminoantipyrine. LabAssay™ Phospholipid is a kit to determine Phospholipid concentration in samples by measuring absorbance of a blue color which is generated by the oxidative condensation reaction.

[Kit Contents]

1	Buffer	50mL×8vials
2	Chromogen Substrate	for 50mL×8vials
3	Standard Solution	10mL×2vials

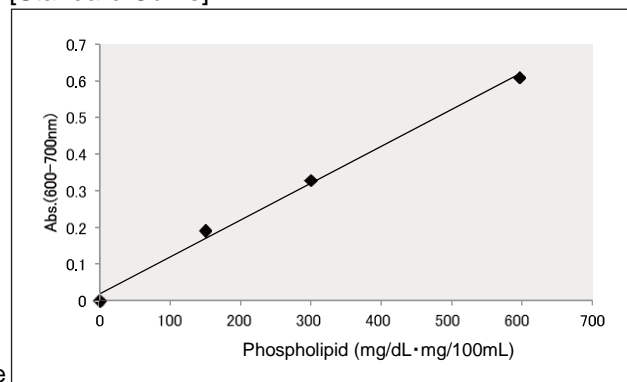
[Performance]

- Standard curve range 150~596.1mg/dL(mg/100mL)
- Measurement time approx. 10 minutes
- Amount of sample 2μL
- Measurement wavelength 600nm(Main), 700nm(Sub)

[Reference]

- 1) Tatematsu, Y. *et al.* : *Biol. Pharma. Bull.*, **41**, 319(2018). ※Liposome
- 2) Kuge, H. *et al.* : *J. Biol. Chem.*, **289**, 26783 (2014). ※Liposome
- 3) Kessler, E. C. *et al.* : *J. Dairy. Sci.*, **97**, 5481 (2014). ※Bovine
- 4) Xu, Q. *et al.* : *Biosci. Biotechnol. Biochem.*, **77**, 1390 (2013). ※Extraction liquid of mouse kidney

[Standard Curve]



Code No.	Product name	Grade	Package size	Storage Condition
296-63801	LabAssay™ Phospholipid	for Cellbiology	1,300 tests	Keep at 2-10°C

※Not available for sale in the US.

LabAssay™ ALP

Alkaline Phosphatase (ALP) is an enzyme distributed in a variety of tissues such as the liver, bone and small intestines in animals. Especially, it is used one of the Osteogenesis Markers in bone metabolism research area.

Assay principle (Alkaline Phosphatase activity assay with *p*-Nitrophenyl Phosphate as a substrate)

p-Nitrophenylphosphate is hydrolyzed into *p*-Nitrophenol in the presence of Alkaline Phosphatase(ALP). LabAssay™ ALP is a kit designed to determine Alkaline Phosphatase activity in samples by measuring the amount of *p*-Nitrophenol released by *p*-Nitrophenylphosphate as a phosphatase substrate.

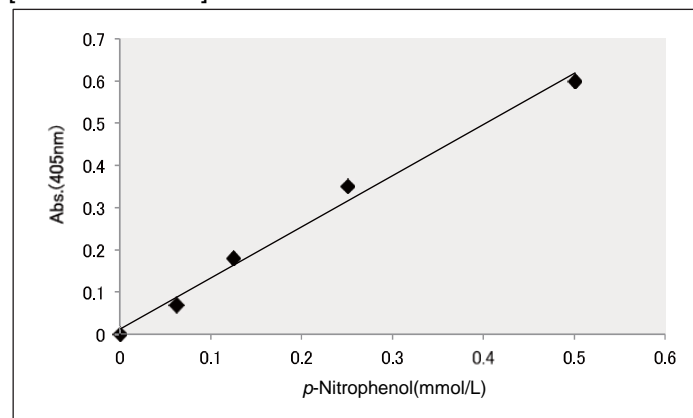
[Kit Contents]

1	Substrate Tablet	20 tablets
2	Buffer Solution	100mL×1vial
3	Stop Solution	100mL×1vial
4	Standard Solution	10mL×1vial

[Performance]

- Standard curve range 0.0625~0.5mmol/L
- Measurement time approx. 20 minutes
- Amount of sample 20μL
- Measurement wavelength 405nm

[Standard Curve]



[Reference]

- 1) Ito, S. *et al.* : *J. Pharmacol. Exp. Ther.*, **333**, 341(2010). ※Extraction liquid of mouse kidney
- 2) Matsuyama, A. *et al.* : *Clin. Exp. Pharmacol. Physiol.*, **45**, 75(2018). ※MC3T3-E1cell, C2C12cell
- 3) Chiba, T. *et al.* : *J. Atheroscler. Thromb.*, **23**, 1099(2016). ※Mouse plasma
- 4) Kohno, Y. *et al.* : *Stem Cell Res. Ther.*, **8**, 115(2017). ※Mesenchymal stem cell

Code No.	Product name	Grade	Package size	Storage Condition
291-58601	LabAssay™ ALP	for Cellbiology	900 tests	Keep at 2-10°C

LabAssay™ Cholesterol

Cholesterol, a major component of cell membranes and the starting material in steroid synthesis in many animals, is a factor behind arteriosclerosis and other vascular diseases.

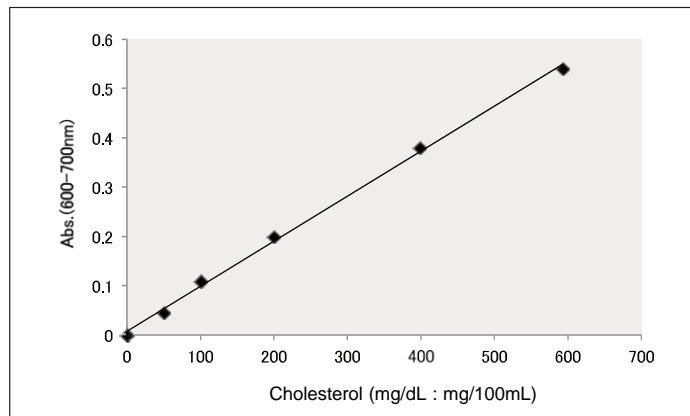
Assay Principle (Cholesterol Oxidase • DAOS method)

Hydrogen peroxide produced by a reaction of cholesterol and cholesterol oxidase let N-Ethyl-N- (2-hydroxy-3-sulfopropyl)-3,5-dimethoxyaniline sodium salt (DAOS) and 4-Aminoantipyrin oxidize and condensate. LabAssay™ Cholesterol is a kit to determine total cholesterol by measuring absorbance of the blue color which is generated by the oxidative condensation reaction.

[Kit Content]

1	Buffer	150mL×2vials
2	Chromogen	150mL×2vials
3	Standard Solution	10mL×1vial

[Standard Curve]



[Performance]

- Standard curve range 50~592.2mg/dL(mg/100mL)
- Measurement time approx. 10 minutes
- Amount of sample 2μL
- Measurement wavelength 600nm(Main), 700nm(Sub)

[Reference]

- 1) Kobayashi, Y. *et al.* : *J. Pharmacogn. Nat. Prod.*, online(2015) doi: 10.4172/2472-0992.1000113 ※Extraction liquid of mouse kidney
- 2) Gao, F. *et al.* : *Evid. Based Complement. Alternat. Med.*, **2015**, 801291(2015). ※Extraction liquid of rat kidney
- 3) Yoshioka, H. and Onosaka, S. : *Fundam. Toxicol. Sci.*, **3**, 151(2016). ※Mouse plasma
- 4) Fujii, N. *et al.* : *Aging Cell*, **16**, 508(2017). ※Rat plasma

Code No.	Product name	Grade	Package size	Storage Condition
294-65801	LabAssay™ Cholesterol	for Cellbiology	1,000 tests	Keep at 2-10°C

※Not available for sale in the US.

LabAssay™ NEFA

NEFA (Non - esterified fatty acid) in the blood is transported complexed with an albumin to peripheral tissues. They are important sources of fuel for the peripheral tissues. The concentration of NEFA in the blood is regulated by a release from the adipose tissues, a consumption in the peripheral tissues or a take up from the liver.

Assay Principle (ACS • ACOD method)

NEFA (Non - esterified fatty acid) forms Acyl-CoA in the presence of Acyl-CoA synthetase(ACS). Hydrogen peroxide, which is produced by a reaction between the Acyl-CoA and Acyl-CoA oxidase(ACOD), promotes oxidative condensation of 3-methyl-N-ethyl-N (-β-hydroxyethyl) -aniline (MEHA) with 4-aminoantipyrine. LabAssay™ NEFA can be used for the quantitative determination of NEFA in samples by measuring absorbance of a blue purple color which is generated by the oxidative condensation reaction.

[Kit Contents]

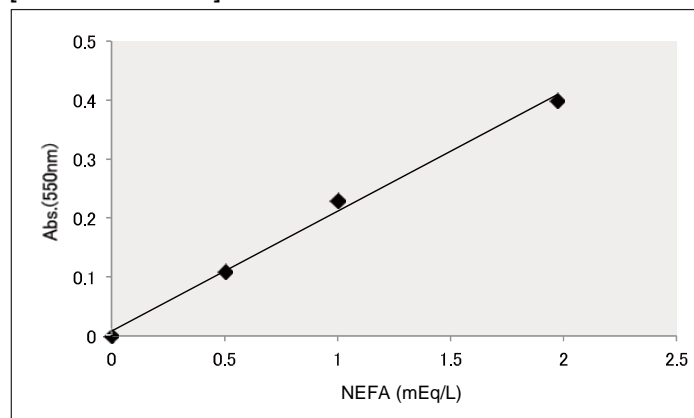
1	Chromogen Reagent A	for 10mL×6vials
2	Solvent A	65mL×1vial
3	Chromogen Reagent B	for 20mL×6vials
4	Solvent B	130mL×1vial
5	NEFA Standard Solution (Oleic acid 1mEq/L)	10mL×1vial

※Oleic acid 1mEq=1mmol

[Performance]

- Standard curve range 0.5~1.97mEq/L
- Measurement time approx. 20 minutes
- Amount of sample 4μL
- Measurement wavelength 550nm

[Standard Curve]



[Reference]

- 1) Kobayashi, Y. *et al.* : *J. Pharmacogn. Nat. Prod.*, online(2015) doi: 10.4172/2472-0992.1000113 ※Extraction liquid of mouse kidney
- 2) Gao, F. *et al.* : *Evid. Based Complement. Alternat. Med.*, **2015**, 801291(2015). ※Extraction liquid of rat kidney
- 3) Ogawa, K. *et al.* : *Reprod. Med. Biol.*, online(2018). doi.org/10.1002/rmb2.12084 ※Follicular fluid derived from pig vesicular ovarian follicle
- 4) Wang, F. *et al.* : *J. Mol. Endocrinol.*, **52**, 133 (2014). ※Mouse plasma

Code No.	Product name	Grade	Package size	Storage Condition
294-63601	LabAssay™ NEFA	for Cellbiology	750 tests	Keep at 2-10°C

※Not available for sale in the US and Europe.

LabAssay™ Creatinine

Creatinine is a metabolite which is produced by creatine phosphate directly or dehydration of creatine in muscle and nerve. It is excreted from the body through kidney glomerular filtration.

Assay Principle (Jaffé method)

LabAssay™ Creatinine can be used to measure the creatinin levels in samples by Jaffe's reaction where creatinine produces quantitatively an orange color with picric acid in alkaline condition.

[Kit Contents]

1	Depoteinizin Reagent	150mL×2vials
2	Picric Acid Reagent	for 150mL×2vials
3	0.75mol/L Sodium Hydroxide Solution	10mL×1vial
4	Standard Solution	10mL×1vial

[Performance]

- Standard curve range 2.5~10mg/dL(mg/100mL)
- Measurement time approx. 40 minutes
- Amount of sample 50μL
- Measurement wavelength 520nm

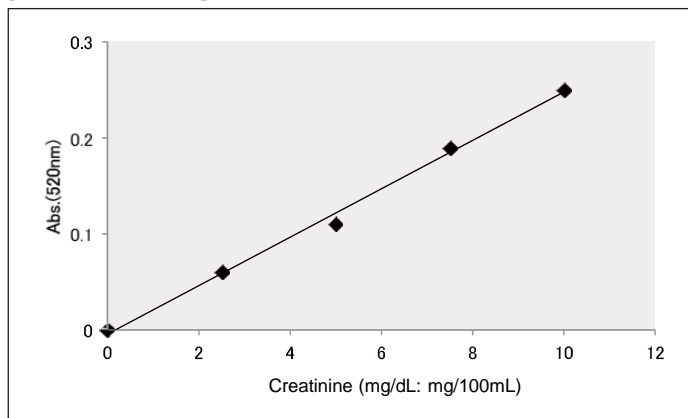
[Reference]

- 1) Kawamoto, T. *et al.* : *Glycative Stress Res.*, **3**, 15(2016). ※Human urine
- 2) Guan, Y. *et al.* : *J. Pharmacol. Sci.*, **135**, 81(2017). ※Mouse urine、Mouse plasma
- 3) Ito, K. *et al.* : *Biol. Pharm. Bull.*, **38**, 1169(2015). ※Rat urine、Rat plasma
- 4) Tahara, Y. *et al.* : *Med. Chem. commun.*, **8**, 415(2017). ※Mouse serum

Code No.	Product name	Grade	Package size	Storage Condition
290-65901	LabAssay™ Creatinine	for Cellbiology	500 tests	Keep at 2-10℃

※Not available for sale in Europe.

[Standard Curve]



LabAssay™ Glucose

Sugar is one of the most important sources of energy in biology. It is regulated by various factors within an organism. Glucose converges to a stable ratio of α-form and β-form in solutions.

Assay Principle (Mutarotase • GOD method)

α-D-Glucose is converted to β-D-Glucose by mutarotase. Hydrogen peroxide, which is produced by a reaction between β-D-Glucose and glucose oxidase(GOD), promotes oxidative condensation of phenol with 4-aminoantipyrine quantitatively. LabAssay™ Glucose is a kit used for the quantitative determination of glucose concentrations in samples by measuring absorbance of a red color which is generated by the oxidative condensation reaction.

[Kit Contents]

1	Buffer	150mL×2vial
2	Chromogen Reagent	for 150mL×2vials
3	Glucose Standard I	10mL×1vial
4	Glucose Standard II	10mL×1vial

[Performance]

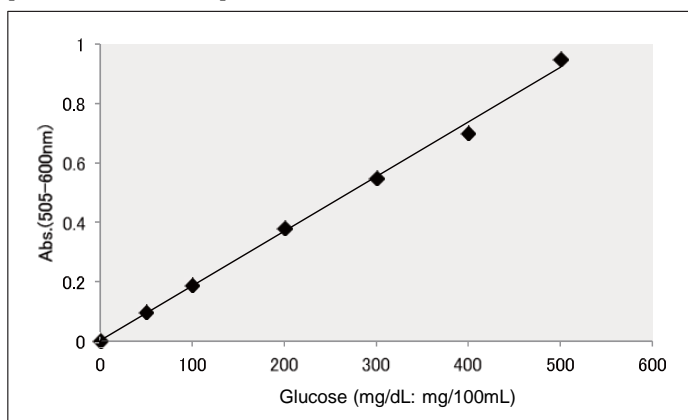
- Standard curve range 2.5~10mg/dL(mg/100mL)
- Measurement time approx. 40 minutes
- Amount of sample 50μL
- Measurement wavelength 505nm(Main), 600(Sub)

[Reference]

- 1) Yamashita, Y. *et al.*: *Biosci. Biotechnol. Biochem.*, **77**, 888 (2013). ※Mouse plasma
- 2) Narita, T. *et al.* : *Exp. Gerontol.*, **104**, 127(2018). ※Rat plasma
- 3) Yamasaki, M. *et al.* : *Food Sci. Technol. Res.*, **21**, 827(2015). ※Mouse serum
- 4) Fan, Y. *et al.* : *J. Biomed. Sci.*, **23**, 56(2016). ※Mouse serum

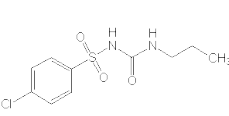
Code No.	Product name	Grade	Package size	Storage Condition
298-65701	LabAssay™ Glucose	for Cellbiology	1,000 tests	Keep at 2-10℃

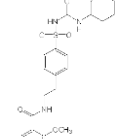
[Standard Curve]

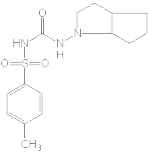


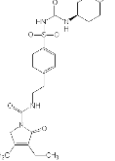
Compounds for Research of Diabetes

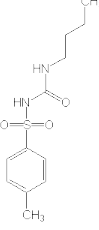
-Sulfonylureas compounds-

Product name	Wako Code	Package Size
Chlorpropamide for Pharmacology Research	032-21482	25g
	CAS No. 94-20-2 $C_{10}H_{13}ClN_2O_3S=276.74$ [Specification Assay] 97.0+% (HPLC) [Solubility] Methanol [Overview] Sulfonylurea (SU) compounds act by enhancing insulin release from the β -islet cells of the pancreas.	

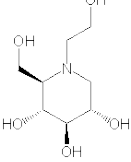
Product name	Wako Code	Package Size
Glibenclamide for Biochemistry	078-03881	5g
	076-03882	25g
	CAS No. 10238-21-8 $C_{23}H_{28}ClN_3O_3S=494.00$ [Specification Assay] 98.0+% (Titration) [Solubility] N,N-Dimethylformamide [Overview] Sulfonylurea (SU) compounds act by enhancing insulin release from the β -islet cells of the pancreas.	

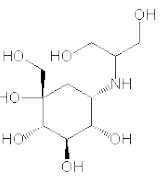
Product name	Wako Code	Package Size
Gliclazide for Biochemistry	071-04731	10g
	CAS No. 21187-98-4 $C_{15}H_{21}N_3O_3S=323.41$ [Specification Assay] 98.0+% (Titration) [Solubility] N,N-Dimethylformamide [Overview] The pharmacological actions of this product known as sulfonylurea (SU) include the action on the islands of Langerhans. 1) Insulin secretion stimulation, 2) somatostatin secretion stimulation, and 3) glucagon secretion inhibition, etc. have been reported.	

Product name	Wako Code	Package Size
Glimepiride for Pharmacology Research	071-05691	500mg
	077-05693	5g
	CAS No. 93479-97-1 $C_{24}H_{34}N_4O_5S=490.62$ [Specification Assay] 97.0+% (HPLC) [Solubility] DMSO [Overview] Sulfonylurea (SU) compounds act by enhancing insulin release from the β -islet cells of the pancreas.	

Product name	Wako Code	Package Size
Tolbutamide for Biochemistry	209-09172	25g
	CAS No. 64-77-7 $CH_3C_6H_4SO_2NHCONHCH_2CH_2CH_2CH_3=270.35$ [Specification Assay] 99.0+% (Titration) [Solubility] Ethanol [Overview] The pharmacological actions of this product known as sulfonylurea (SU) include the action on the islands of Langerhans. 1) Insulin secretion stimulation, 2) somatostatin secretion stimulation, and 3) glucagon secretion inhibition, etc. have been reported.	

- α -Glucosidase Inhibitor -

Product name	Wako Code	Package Size
Miglitol for Pharmacology Research	138-16221	10mg
	CAS No. 72432-03-2 $C_8H_{17}NO_5=207.22$ [Specification Assay] 97.0+% (HPLC) [Solubility] Water [Overview]	

Product name	Wako Code	Package Size
Voglibose for Pharmacology Research	229-01891	10mg
	225-01893	1g
	CAS No. 83480-29-9 $C_{10}H_{21}NO_7=267.28$ [Solubility] Water [Overview]	

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