

# Wako Product Update

## BIOCHEMISTRY

Please visit the Wako Online Catalog  
<http://search.wako-chem.com>



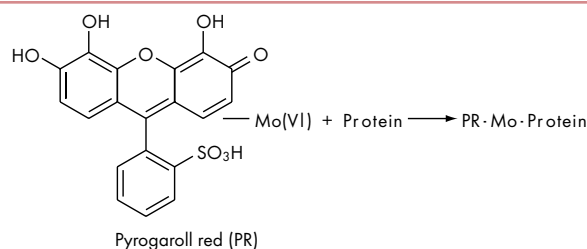
## BIOCHEMISTRY

- 1. Reagent Kits**..... 1
- A. Protein Assay Kits**
- Protein Blot Assay Kit *wako* (291-57001, 297-57003)
  - Protein Assay Rapid Kit *wako* (293-56101, 299-56103)
- B. Specific histostaining of Alzheimer's diseased brain tissues**
- Amyloid  $\beta$ -Protein Immunohistostain Kit (299-56701)
  - Phosphorylated Tau Immunohistostain Kit (299-57301)
- C. Quenched Fluorescence Substrate Assay Kit of Protein Tyrosine Phosphatase Activity**
- Fluorospark™ PTP Assay Kit (299-55601)
- D. Endotoxin Detection Kit**
- Limulus PS Single Test *wako* (299-54501)
- 2. Apoptosis Research**..... 4
- A. Unique Bioprobe and Apoptosis Inducer**
- Cytotorienin A (039-18241)
- B. Antibodies for Apoptosis Research**
- Anti Human Bcl-xL, MAb (010-16851)
  - Anti Human Bcl-2, MAb (013-16101)
  - Anti Rat Bcl-2, MAb (017-16481)
  - Anti Human Activated Caspase-3 (CPP32), MAb (015-18121)
  - Anti Human Activated Caspase-3, Rabbit (010-17331)
  - Anti Human Activated Caspase-4, Rabbit (018-17131)
  - Anti DNase  $\gamma$ , MAb [Clone: hg303] (019-18521)
  - Anti Human Fas, MAb [Clone: APO1-3] (010-16351)
  - Anti Human Fas, MAb [Clone: SM1/1] (013-16341)
  - Anti Human Fas, MAb [Clone: SM1/23] (017-16361)
  - Anti Human Fas, Rabbit (019-16181)
  - Anti Mouse Fas, Rabbit (015-17261)
  - Anti Rat Fas Ligand, Rabbit (012-17271)
- C. Apoptosis Ladder Detection Kit**
- Apoptosis Ladder Detection Kit *wako* (291-53204, 297-53201)
- 3. Signal Transduction**..... 5
- A. TGF- $\beta$  Super Family**
- Activin A (017-17961)
  - Activin AB (014-17971)
  - Activin B (011-17981)
  - Follistatin (063-04011)
  - [Related Product]
    - *all-trans*-Retinoic Acid (186-01114, 182-01111, 188-01113)
- B. Inhibitors**
- Xestospongins C (244-00721)
  - [Related Products]
    - Ryanodine (181-00961)
    - Stelletamide A Trifluoroacetate (193-11831)
    - Thapsigargin (549-00301, 545-00303)
  - Sclerotiorin (196-12161)
  - U0126 (211-01051)
  - [Related Products]
    - PD-98059 (169-19211), SB203580 (190-11581)
  - PKSI527 (164-20153, 168-20151)
- 4. Biologically Active Substances**..... 7
- A. Polyphenols**
- Theaflavin (201-15161)
  - Theaflavin-3-gallate (202-15191)
  - Theaflavin-3'-gallate (204-15271)
  - Theaflavin-3,3'-digallate (208-15171)
  - (-)-Epicatechin (059-06751, 055-06753)
  - (-)-Epicatechin Gallate (052-06741, 058-06743)
  - (-)-Epigallocatechin (056-06761, 052-06763)
  - (-)-Epigallocatechin Gallate (059-05411)
  - Catechin (032-18231)
  - Daidzin (040-27741, 046-27743)
  - Daidzein (043-28071, 049-28073)
  - Glycitin (077-04691, 073-04693)
  - Glycitein (070-04701, 076-04703)
  - Genistin (070-04681, 076-04683)
  - Genistein (546-00171)
  - Isoflavone (093-04771)
- 5. Enzyme Inhibitors**..... 8
- A. HMG-CoA Reductase Inhibitors**
- Compactin (033-17301)
  - Lovastatin (125-04581)
  - Simvastatin (193-12051, 199-12053)
  - Pravastatin Sodium (162-19821, 168-19823)
- 6. Cell Component of Gram-positive and Gram-negative bacteria**.... 8
- A. Peptidoglycans**
- Peptidoglycan Type I (167-20241)
  - Peptidoglycan Type II (164-20251)
  - Peptidoglycan Type III (161-20261)
  - [Related Products]
    - SLP Reagent Set (297-51501), SLP Single Reagent Set (295-53001)
    - Peptidoglycan (162-18101)
- 7. Immunology**..... 9
- A. Antibodies**
- Antibodies for Apoptosis Research (See page 4)
  - Anti Human COX-1, MAb [Clone: hPES01] (012-18511)
  - Anti Human COX, Rabbit (015-18501)
  - Anti soluble Guanylate Cyclase (sGC), MAb [Clone: mAB3221] (019-17801)
  - Anti soluble Guanylate Cyclase (sGC), MAb, NO insensitive [Clone: mAB28131] (017-18201)
  - Anti Rat iNOS, MAb [Clone: A2] (012-18631)
  - Anti Rat nNOS, MAb [Clone: C7] (019-18641)
- B. Cell Separation**
- Nylon Fiber Column T (147-06721)
  - Nylon Fiber Column T (L-Type) (143-07041)
- 8. Histochemistry**..... 10
- A. Embedding Medium for Mouse and Rat tissue**
- Pathoprep® 546 (167-20501)
  - [Related Products]
    - Pathoprep® 568 (162-18961), Pathoprep® 580 (165-19551)

# 1. Reagent Kits -Protein Assay Kits-

## A. Protein Assay Kits

Protein Assay kits, based on a principle that the pyrogallol red-molybdate complex reagent reacts with protein to form a protein-dye complex, resulting in shifts of the maximal wavelength of the absorbance of the dye from 470 nm to 602 nm



WAKO PRODUCT UPDATE

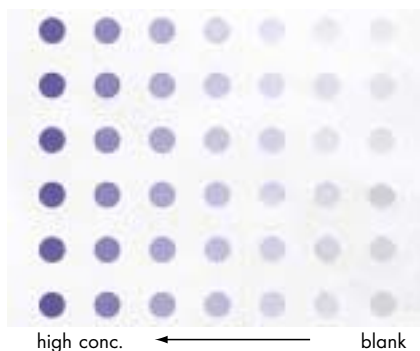
### a. Unique Assay using Dot Blotter [Solid-Phase Assay]

#### Protein Blot Assay Kit wako

291-57001 96 Blot

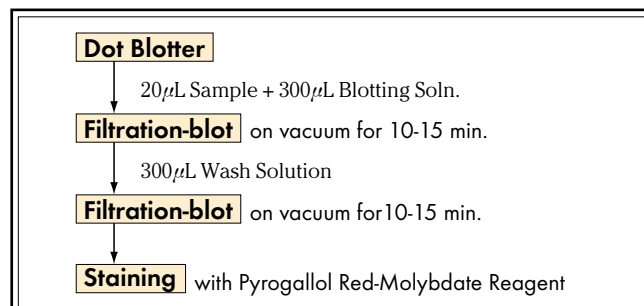
297-57003 480 Blot

2-10°C



#### [Features]

1. Allowing the precise protein assay even in the presence of SDS (4%) or Triton X-100 (2%)
2. Linear range: 0.2-20 $\mu\text{g}$  protein/spot
3. An improved protein-to-protein variation compared with the solution-based assay "Protein Assay Rapid Kit wako".



#### Kit Contents (96 Blots)

① PVDF Membrane	1 sheet
② Filter Paper	4 sheets
③ Blotting Solution	1 bottle × 30 mL
④ Wash Solution	1 bottle × 30 mL
⑤ Color-producing Solution	1 bottle × 60 mL
⑥ BSA Standard Solution (2mg/mL)	1 bottle × 200 $\mu\text{L}$

WAKO PRODUCT UPDATE

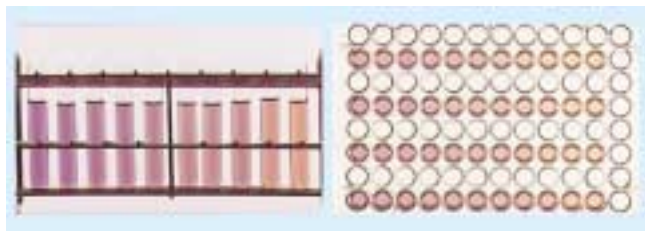
### b. 20 min-Assay [Solution-based Assay]

#### Protein Assay Rapid Kit wako

293-56101 100 tests

299-56103 400 tests

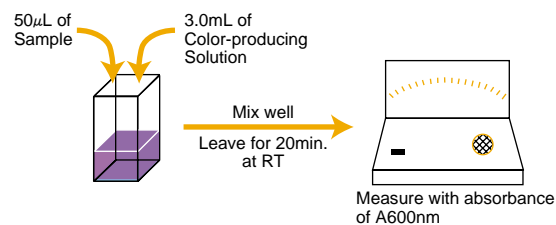
2-10°C in a dark place, Liquid



#### [Features]

1. Non-specific adsorptive and less self aggregate, therefore, cuvette or microplate can be rinsed with water, easily
2. Dynamic range is quite wide from 60-2,000 $\mu\text{g}/\text{mL}$
3. High sensitive, one step operation at room temperature

#### ONE STEP!!



#### Kit Contents (100 tests)

① Color-producing Solution	1 bottle × 310 mL
② BSA Standard Solution (2mg/mL)	1 bottle × 5mL

**B. Histostaining of Alzheimer's Diseased Brain Tissues**  
**a. Distinctive Histostaining of A $\beta$ 40 and A $\beta$ 42 plaques**  
**Amyloid  $\beta$ -Protein Immunohistostain Kit**

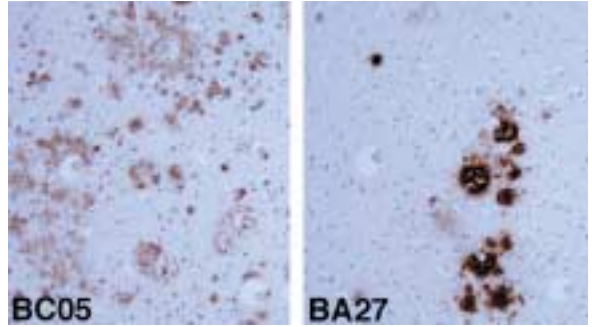
299-56701 50 tests  
 2-10°C

**[Features]**

1. Distinctive histostaining of A $\beta$ 40 and 42 plaques in Alzheimer's diseased brain tissues
2. High sensitivity histo-immune detection of A $\beta$  plaques in tissue sections with low background

**Kit Contents (50 tests)**

① Blocking Serum	1 bottle × 10 mL
② Anti Mouse IgG (H+L), Goat, Conjugated	1 bottle × 10 mL
③ ABC Solution (Streptavidin-biotin-peroxidase Complex)	1 bottle × 10 mL
④ Formic Acid (90%)	1 bottle × 15 mL
⑤ Anti Amyloid $\beta$ -Protein (1-40), MAb, Clone #BA27	1 bottle × 7 mL
⑥ Anti Amyloid $\beta$ -Protein (1-42), MAb, Clone #BV05	1 bottle × 7 mL
⑦ Trypsin, Cryst	1 bottle × 50 L

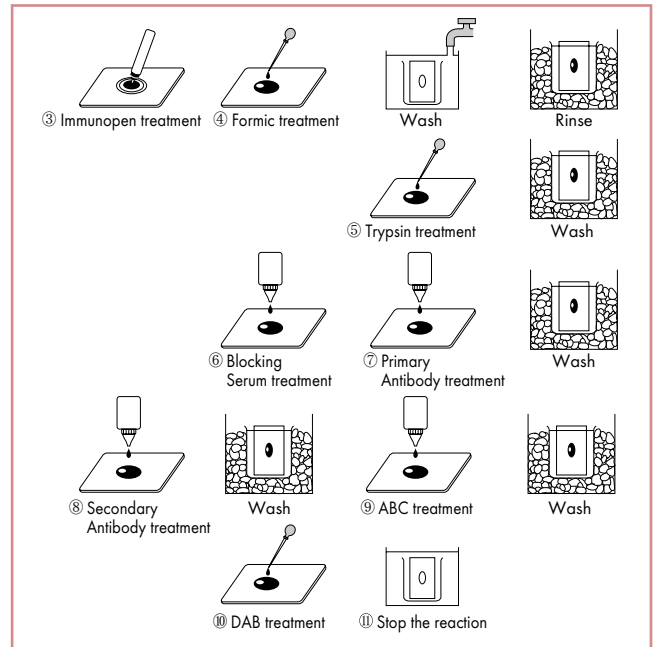


Immunostaining of senile plaques in the consecutive sections of the brain affected with Alzheimer's Disease.  
 Left: A $\beta$ 42-staining using Anti A $\beta$ 42 Ab (Clone #BC05);  
 Right: A $\beta$ 40-staining using Anti A $\beta$ 40 Ab (Clone #BA27)  
 (provided by Dr. Iwatsubo, Univ. of Tokyo)

**[Procedures]**

Section of a slide glass plate

- ① Deparaffinizing
- ② Wash in distilled deionized water, for 2 min. × 2
- ③ Immunopen\* treatment Circling section becomes a barrier to protect unnecessary spreading of solutions for staining  
\*: available from Wako cat. #299-20551
- ④ **Formic Acid treatment** for 5 min. at RT  
 ↓  
 Wash with a gentle stream of tap water for 5 min. at RT  
 ↓  
 Rinse with chilled PBS-Tween20 for 5 min. on ice
- ⑤ **Trypsin treatment** for 15 min. at 37°C  
 ↓  
 Wash with chilled PBS-Tween20 for 5 min. × 2, on ice
- ⑥ **Blocking Serum treatment** for 30 min. at 37°C
- ⑦ **Primary Antibody (Anti A $\beta$ 40 or A $\beta$ 42) treatment** for 1 hr. at 37°C  
 ↓  
 Wash with PBS-Tween20 for 2 min. × 5, on ice
- ⑧ **Secondary Antibody treatment** for 1 hr. at 37°C  
 ↓  
 Wash with PBS-Tween20 for 2 min. × 3, on ice
- ⑨ **ABC treatment** for 30 min. at RT  
 ↓  
 Wash with PBS-Tween20 for 2 min. × 3, on ice
- ⑩ **DAB treatment** for 2-10 min. at RT  
 ↓  
**Stop the reaction** with distilled deionized water for 1 min.



\*\*\*\*\*WAKO PRODUCT UPDATE

**b. Histostaining of Neurofibrillary Changed Tissues**  
**Phosphorylated Tau Immunohistostain Kit**

299-57301 100 tests  
 2-10°C, in the dark

**[Features]**

1. A high sensitive histo-immune detection of neurofibrillary lesions in tissue section with low background.
2. Specific staining of hyperphosphorylated tau protein, but not normal tau protein, due to use of an antibody to phosphorylated Ser-422 of tau protein



Alzheimer's disease cortex immunostained with mAb AP422.  
 Note the staining of numerous neurofibrillary tangles, neurophil threads and plaque neurites. (provided by Dr. Hasegawa, Tokyo Institute of Psychiatry)

**Kit Contents (100 tests)**

① Anti Phosphorylated Tau Protein (pSer-422), Rabbit	1 bottle × 10 mL
② Blocking Serum	1 bottle × 10 mL
③ Anti Rabbit IgG (H+L), Goat, Biotin Conjugated	1 bottle × 10 mL
④ ABC Solution (Streptavidin-biotin-peroxidase Complex)	1 bottle × 10 mL

**[Procedures]**

Section of a slide glass plate

- ① Deparaffinizing
- ② Immunopen treatment
- ③ 3% H<sub>2</sub>O<sub>2</sub> treatment → Wash
- ④ Blocking
- ⑤ Primary antibody treatment → Wash
- ⑥ Secondary antibody Treatment → Wash
- ⑦ ABC Solution → Wash
- ⑧ DAB treatment → Stop the reaction

### C. Quenched Fluorescence Substrate Assay of PTP Activity

#### Fluorospark™ PTP Assay Kit

299-55601 100 tests

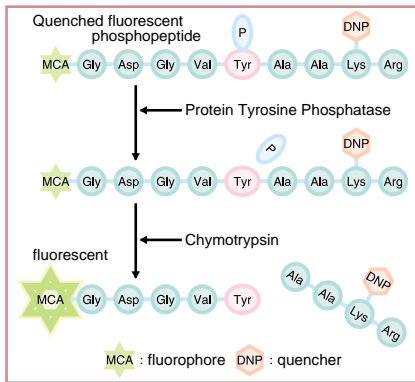
-20°C, D/I

Phosphorylation and dephosphorylation of protein tyrosine in signal transduction is thought to play a critical role in regulation of physiological phenomena as immune response, oncogenesis, differentiation, apoptosis, and cell proliferation. Many tyrosine kinases have been cloned and characterized to understand signaling pathways by phosphorylation, whereas, little is known about the roles of Protein Tyrosine Phosphatase (PTP). Fluorospark™ PTP Assay Kit consists of all the essential buffers and reagents including quenched fluorescent phosphorylated peptide substrate for PTP, allowing a homogeneous fluorescent PTP activity assay with a fluorescence microplate reader and a standard fluorometer. The sensitivity by the standard assay protocol is at 1 pmol or the less, compatible to those of the assay using radio actives.

#### [Features]

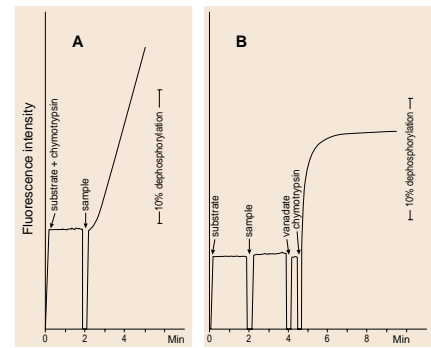
1. High sensitive measurement of PTP activity at sub-pico moles, compatible to that with RI labeled peptide substrate.
2. Allowing a homogeneous assay of PTP, which is simple, rapid, and applicable to high throughput screening assay as well as that using fluorescence microplate reader.
3. Allowing the PTP assay even in the presence of phosphate because of indirect measurement of released phosphate.

#### [Principle]



#### Kit Contents (100 tests)

- ① Anti Substrate Solution (200 μmol/L) 110 μL
- ② Enzyme reaction buffer 1.5 mL
- ③ 0.2% (w/v) Chymotrypsin solution 220 μL
- ④ Calibrator (containing MCA-Gly-Asp-Gly-Val-Tyr) 40 μL
- ⑤ Stop solution (10 mmol/L sodium vanadate) 220 μL



Kinetic experiment

Endpoint experiment

Measurement of PTP activity in cytoplasmic fraction of osteoblast like cell line (Data was provided by Dept. of Dental Pharmacology, Hokkaido Univ. School of Dentistry (Japan))

**Reference:** Nishikata, M., et al., A phosphotyrosine-containing quenched fluorogenic peptide as a novel substrate for protein tyrosine phosphatases, *Biochem. J.*, **343**, 385-391 (1999).

WAKO PRODUCT UPDATE

### D. Detection of a slight amount of Endotoxin, even from fatty sample

#### Limulus PS Single Test wako

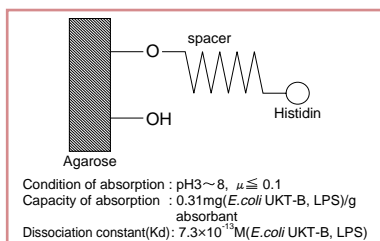
299-54501 20 tests

2-10°C

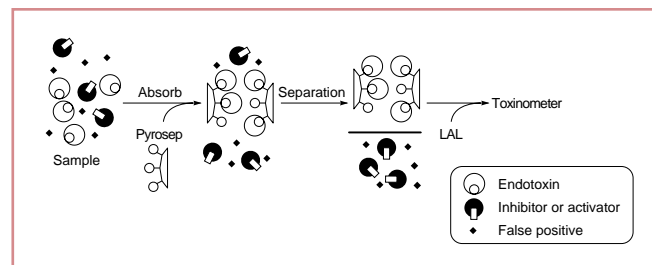
This kit is composed of LAL ES reagent and Pyrosep\* suspension. Affinity concentration of endotoxin from sample is done with Pyrosep resin column chromatography packed in capillary as the first step, followed by measurement of endotoxin by time resolved turbidimetric assay using LAL ES reagent, which allows measurement of endotoxin in much smaller amount than conventional methods do, even in fatty samples such as fat-soluble vitamins.

\*: Pyrosep is an affinity resin specific to endotoxin, which is composed of water-insoluble support and histidine as a ligand conjugated through a spacer. This resin, developed by Tanabe Pharmaceuticals, Ltd. (Japan), is useful for removal of endotoxin from macromolecule solutions and complicated solutions.

#### [Schematic figure of Pyrosep]



#### [Principle]



#### Kit Contents (20 tests)

- ① Pyrosep Suspension 20 vials × 0.07mL
- ② Capillary, Endotoxin Free 20 capillaries
- ③ LAL ES Reagent 20 vials × for 0.3mL
- ④ LAL Reconstitution Solution 2 vials × 7mL
- ⑤ Washing Solution 4 vials × 11mL
- ⑥ Sampl Dilution Buffer Solution 4 vials × 10mL

## 2. Apoptosis Research –Inducing Bioprobe, Antibodies–

### A. Apoptosis Inducing Bioprobe

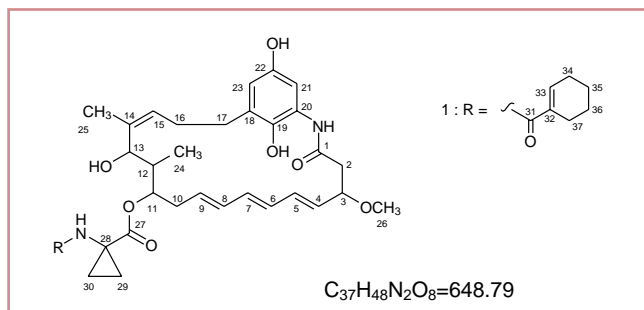
#### Cytotrienin A, from *Streptomyces* sp.

039-18241 100 $\mu$ g

-20°C, D/I, Crystalline powder

A unique bioprobe, cytotrienin A induces apoptosis (or programmed cell death) in human promyelocytic leukemia HL-60 cells at a low concentration (10 ng/mL).

Solubility : Soluble in methanol (0.1 mg/mL)



#### References:

1. Kakeya, H., Zhang, H., Kobinata, K. Onose, R., Onozawa, C., Kudo T. and Osada, H., "Cytotrienin A, a Novel Apoptosis Inducer in Human Leukemia HL-60 Cells", *J. Antibiotics*, **50**(4), 370-372 (1997)
2. Zhang, H., Kakeya, H. and Osada H., "Novel Triene-ansamycins, Cytotrienins A and B, Inducing Apoptosis on Human Leukemia HL-60 Cells", *Tetrahedron Letters*, **38**(10), 1789-1792 (1997)
3. Kakeya, H., Onose, R., and Osada, H., "Caspase-mediated Activation of a 36-kDa Myelin Basic Protein Kinase during Anticancer Drug-induced Apoptosis", *Cancer Research*, **58**, 5888-4894 (1998).
4. Watabe, M., Kakeya, H., Onose, R., and Osada, H., "Activation of MST/Krs and c-Jun N-terminal Kinases by Different Signaling Pathways during Cytotrienin A-induced Apoptosis", *J. Biol. Chem.*, **275**, 8766-8771 (2000).

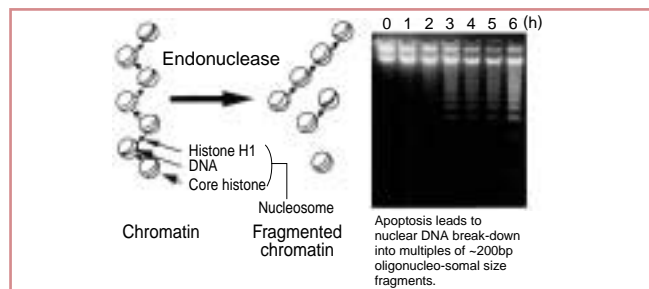
WAKO PRODUCT UPDATE

### B. Antibodies for Apoptosis Research

Wako Cat. #	Description	Package Size	Specificity	Application	Condition	Note
010-16851	Anti Human Bcl-xL, MAb [Clone: HBx-2F3]	100 $\mu$ g (0.5mL)	Reacts with human Bcl-xL, Bcl-xS and Bcl- $\beta$	Westernblot 1:200~1:1,000 Immunoprecipitation 1:200~1:400	-20°C, D/I, Liquid	Prepared in PBS solution, containing no stabilizer and preservative.
013-16101	Anti Human bcl-2, MAb [Clone: Bcl-2/100]	100 $\mu$ g (100 $\mu$ L)	Recognizes 25kDa human bcl-2 protein.	Westernblot 1:100~1:1,000 Immunoprecipitation 1:100~1:1,000 Immunohistochemistry (Frozen section)1:100~1:1,000 (Paraffin section)1:100~1:200	2~10°C, Liquid	Prepared in PBS solution, containing 0.5mg/mL of gentamicin sulfate as a preservative.
017-16481	Anti Rat bcl-2, MAb [Clone: B 248]	100 $\mu$ g (200 $\mu$ L)	Specific for Bcl-2 of rat and mouse. Not cross-reactive with human Bcl-2.	Westernblot 1:500~1:5,000	-20°C, D/I, Liquid	Prepared in PBS solution, containing no stabilizer and preservative.
015-18121	Anti Human Activated Caspase-3 (CPP32), MAb [Clone: CS-3]	1mL	Reacts with p10 subunit of human activated caspase-3, but not with human caspase-3 proenzyme.	Westernblot (chemiluminescence) 1:50~1:150 Immunofluorescence 1:10~1:20	-20°C, D/I, Liquid	Contains no stabilizer and preservative.
010-17331	Anti Human Activated Caspase-3, Rabbit	100 $\mu$ L	Reacts with p10 subunit of human activated caspase-3, but not with human caspase-3 proenzyme.	Westernblot (chemiluminescence) 1:100~ Immunofluorescence 1:50~	-20°C, D/I, Liquid	Prepared in PBS solution, containing no stabilizer and preservative.
018-17131	Anti Human Activated Caspase-4, Rabbit	500 $\mu$ L	Reacts with p10 subunit of human activated caspase-4, but not with human caspase-4 proenzyme.	Westernblot (chemiluminescence) 1:100	-20°C, D/I, Liquid	Prepared in PBS solution, containing no stabilizer and preservative.
019-18521	Anti Human DNase $\gamma$ , MAb [Clone: hg_303]	100 $\mu$ g	Specific to human DNase $\gamma$ ; does not cross-react with other DNase I family DNases or with mouse or rat DNase $\gamma$	Westernblot 1:500	-20°C, Lyophilized	Reconstitute in 0.1 mL distilled water to make 20 mmol/L HEPES solution (pH 7.4) containing 150 mmol/L NaCl.
010-16351	Anti Human Fas, MAb [Clone: APO1-3]	100 $\mu$ g (1mL)	Specifically recognized human Fas. Cross-reactivities have not been determined.	Flow Cytometry, Westernblot	2~10°C, Liquid	Prepared in PBS solution containing 1% BSA as a stabilizer. Induces apoptosis.
013-16341	Anti Human Fas, MAb [Clone: SM1/1]	100 $\mu$ g (1mL)	Specific to human Fas. Cross-reactivities have not been determined.	Flow Cytometry, Westernblot 1~10 $\mu$ g/mL, Immunohistochemistry (Frozen sections) 1~10 $\mu$ g/mL	2~10°C, Liquid	Prepared in PBS solution containing 1% BSA as a stabilizer. Induces apoptosis at 100~500ng/mL in JURKAT cells and SKW6.4 cells if secondary crosslinking with anti mouse IgG is used. Induces apoptosis in human Fas-transfectants without cross-linking.
017-16361	Anti Human Fas, MAb [Clone: SM1/23]	100 $\mu$ g (1mL)	Specific to human Fas. Cross-reactivities have not been determined.	Flow Cytometry, Westernblot 1~10 $\mu$ g/mL, Immunohistochemistry (Frozen sections) 1~10 $\mu$ g/mL	2~10°C, Liquid	Prepared in PBS solution containing 1% BSA as a stabilizer. Blocks induction of apoptosis by clone SM1/1.
019-16181	Anti Human Fas, Rabbit	100 $\mu$ L	Reacts with Fas in amnion and chorion cells of human placenta and stratified epithelium of human oral cavity.	Immunohistochemistry (Paraffin section) 1:100~1:500	-20°C, D/I, Liquid	Contains no preservative and stabilizer.
015-17261	Anti Mouse Fas, Rabbit	100 $\mu$ L	Reacts with Fas in cytoplasm of mouse hepatocyte and granulosa cells and ovum of mouse ovary.	Immunohistochemistry (Paraffin section) 1:100~1:500	-20°C, Liquid	Contains no preservative and stabilizer.
012-17271	Anti Rat Fas Ligand, Rabbit	100 $\mu$ L	Reacts with Fas ligand in epithelium of mouse cornea and interstitial cells of mouse testis.	Immunohistochemistry (Paraffin section) 1:100~1:500	-20°C, D/I, Liquid	Contains no preservative and stabilizer.

### C. Apoptosis Ladder Detection kit Apoptosis Ladder Detection Kit *wako*

291-53204 24 lanes  
297-53201 96 lanes  
2-10°C



#### [Features]

1. High Sensitivity: At least  $10^3$  apoptotic cells can be detected in cells and tissues.
2. Speedy Measurement: The kit involves about two and half hours, from DNA extraction to agarose gel analysis and

fluorescent staining with SYBR™ GREEN I.

3. Simple and Highly Reproducible: After mixing with Loading Buffer, the recovered DNA can be readily applied to the gel slot of the Agarose Gel, provided.
4. Clear Image of DNA Ladder: DNA is extracted by our own unique method, independent of any proteins or lipids contained in the cells.
5. Non-Hazardous: No deleterious solvents, such as phenol and chloroform, are used.

#### Kit Contents

- |                            |                            |
|----------------------------|----------------------------|
| ① Enzyme Reaction Solution | ② RNase                    |
| ③ Enzyme Activator         | ④ Protein Digestion Enzyme |
| ⑤ DNA Extraction Solution  | ⑥ TE Buffer                |
| ⑦ Agarose Gel              | ⑧ Loading Buffer           |
| ⑨ Ladder Marker (123 bp)   | ⑩ SYBR™ Green I*           |

\*: This reagent is licensed and provided for specific use as a kit component by Molecular Probes, Inc., Oregon, USA.

## 3. Signal Transduction -TGF-β Super Family, Inhibitors-

### A. TGF-β Super Family

For Research of Development & Differentiation, etc.

*Activin AB and Activin B have been launched!*

Wako Cat. #	Description	Package Size	Appearance	Condition
017-17961	Activin A, from Bovine Ovarium	2 μg	Lyophilized	-20°C, D/I
014-17971	Activin AB, from Bovine Ovarium	2 μg	Lyophilized	-20°C, D/I
011-17981	Activin B, from Bovine Ovarium	2 μg	Lyophilized	-20°C, D/I

[A protein neutralizes activin to bind activin]

063-04011	Folistatin, from Porcine Ovarium	2 μg	Lyophilized	-20°C, D/I
-----------	----------------------------------	------	-------------	------------

[Related Product]

186-01114	all-trans-Retinoic Acid	50 mg	Lyophilized	-20°C, D/I
182-01111		250 mg		
188-01113		1 g		

WAKO PRODUCT UPDATE

### B. Inhibitors

#### a. Membrane-Permeable Inhibitor of IP<sub>3</sub> Receptor

**Xestospongins C, from *Xestospongia* sp., 90+% (HPLC)**

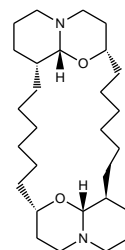
244-00721 100μg

-20°C, D/I, Lyophilized form in 20 mmol/L HEPES solution (pH 7.3) containing 0.1% BSA as a stabilizer, packaged under inert gas.

A selective and membrane-permeable inhibitor of the inositol 1,4,5-triphosphate (IP<sub>3</sub>) receptor-mediated Ca<sup>2+</sup> release, isolated from an Okinawan marine sponge *Xestospongia* sp. A potent and highly sensitive inhibitor of IP<sub>3</sub> receptor with IC<sub>50</sub> of 350nM, which is 30 times lower than that for ryanodine-receptor.

#### Reference:

Miyamoto, S., et al., "Xestospongins C, a selective and membrane-permeable inhibitor of IP<sub>3</sub> receptor, attenuates the positive inotropic effect of α-adrenergic stimulation in guinea-pig papillary muscle", *British Journal of Pharmacology*, 130, 650-654 (2000)



Xestospongins C (= araguspongine E)



An Okinawan marine sponge *Xestospongia* sp., provided by Dr. Kobayashi, Osaka Univ.

[Related Products]

**Ryanodine** [181-00961, 1mg]

**Stelletamide A Trifluoroacetate** [193-11831, 100μg]

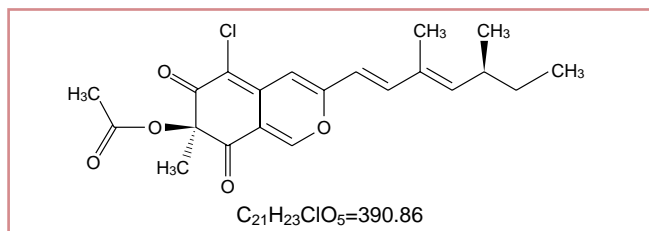
**Thapsigargin** [549-00301 (1mg), 545-00303 (5mg)]

### b. Phospholipase A<sub>2</sub> Inhibitor

**Sclerotiorin**, from *Penicillium sclerotiorum*, 97.0+% (HPLC)

196-12161 25mg

2-10°C, Solid



A yellow, chlorine-containing pigment Sclerotiorin has following activities :

- (1) Phospholipase A<sub>2</sub> Inhibitor
- (2) A chlamydospore-like cell-inducing activity (Ref.2)
- (3) Activity in assays for the detection of antagonists of the endothelin-A (ET<sub>A</sub>) and endothelin-B (ET<sub>B</sub>) receptors (Ref.4)
- (4) A potent inhibitory activity on cholesteryl ester transfer protein (CETP) with an IC<sub>50</sub> value of 19.4 μM. The transfer activity of both CE and TG was inhibited to approximately the same extent (IC<sub>50</sub>: 14.4 and 10.3 μM, respectively.) (Ref.5)

Solubility : Soluble in chloroform, dichloromethane, acetone and ethyl acetate.

Specific rotation  $[\alpha]_D^{20}$  (c=1, CHCl<sub>3</sub>): +450 ~ +550°

#### References:

1. Curtin T.P., et al.: Sclerotiorine, C<sub>20</sub>H<sub>20</sub>O<sub>5</sub>Cl, a chlorine-containing metabolic product of *Penicillium sclerotiorum* van Beyma, *Biochem. J.*, **34**, 1419-1421 (1940).
2. Natsume, M., et al.: Chlamydospore-like cell-inducing substances of Fungi: close correlation between chemical reactivity with methylamine and biological activity, *Agric. Biol. Chem.*, **52**(2), 307-312 (1988).
3. Omura, S., et al.: Isochromophilones I and II, Novel Inhibitors against gp120-CD4 binding from *Penicillium* sp., *J. Antibiot.*, **46**(12), 1908-1911 (1993)
4. Pairet, L., et al.: Azaphilones with Endothelin Receptor binding activity produced by *Penicillium sclerotiorum*: Taxonomy, Fermentation, Isolation, structure elucidation and biological activity, *J. Antibiot.*, **48**(9), 913-923 (1995).
5. Tomoda, H., et al.: Structure-specific Inhibition of Cholesteryl Ester Transfer Protein by Azaphilones, *J. Antibiot.*, **52**(2), 160-170 (1999).

\*\*\*\*\* WAKO PRODUCT UPDATE

### c. MAP Kinase Cascade Inhibitor

**U0126**, 95.0+%

**[1,4-Diamino-2,3-dicyano-1,4-bis [2-aminophenylthio]butadiene]**

211-01051 5mg

-20°C, D/I, Solid

CAS : 109511-98-2

Solubility : Methanol

A mitogen-activated protein (MAP) kinase cascade inhibitor U0126 inhibits both MEK1 and MEK2 in vitro with comparable IC<sub>50</sub> values (72nM and 58nM, respectively).

#### References:

1. Dudley, D, et al., "A synthetic inhibitor of the mitogen-activated protein

kinase cascade", *Proc. Nat. Acad. Sci. USA*, **92**, 7686-7689 (1995)

2. Alessi, D., et al., "PD098059 Is a Specific Inhibitor of the Activation of Mitogen-activated Protein Kinase Kinase in Vitro and in Vivo.", *J. Biol. Chem.*, **270**, 27489-27494 (1995)
3. Favata, M., et al., "Identification of a Novel Inhibitor of Mitogen-activated Protein Kinase Kinase", *J. Biol. Chem.*, **273**, 18623-18632 (1998).
4. Mansour, S., et al., "Interdependent Domains Controlling the Enzymatic Activity of Mitogen-Activated Protein Kinase Kinase 1", *Biochemistry*, **35**, 15529-15536 (1996).

#### [Related Products]

**PD-98059** [169-19211, 5mg]

**SB203580** [190-11581, 1mg]

\*\*\*\*\* WAKO PRODUCT UPDATE

### d. Plasma Kallikrein Selective Inhibitor

**PKSI™ -527**, 95+% (HPLC)

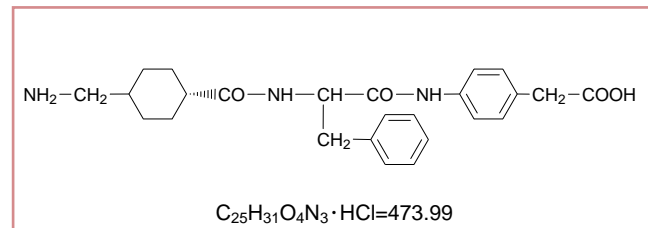
**[N-(trans-4-aminomethylcyclohexenecarbonyl)-L-phenylalanine 4-carboxymethylaniline hydrochloride]**

164-20153 10mg

168-20151 100mg

2-10°C, Lyophilized form in 20 mmol/L HEPES solution (pH 7.3) containing 0.1% BSA as a stabilizer.

Solubility : <10 mmol/L (H<sub>2</sub>O)



Plasmaprekallikrein circulates in the blood as the zymogen of plasma kallikrein, and is activated by factor XIIIa to form plasma kallikrein. Plasma kallikrein releases bradykinin from high molecular weight kininogen. Furthermore, it has been reported that plasma kallikrein activates factor XII, pro-urokinase and plasminogen. Plasma kallikrein is also known to cause neutrophil aggregation and elastase release. These observations suggest that plasma kallikrein has many function. PKSI-527 inhibited plasma-kallikrein (PK) with a K<sub>i</sub> value of 0.81 μM is a great potential tool in elucidating the significance of PK.

#### [Kinetic Data]

Enzyme	Plasma kallikrein	Glandular kallikrein	Plasmin	Thrombin	Factor Xa	Urokinase
K <sub>i</sub> (μM)	0.81	>500	390	>500	>500	200

#### Reference:

Wanaka, K., et al., "Effect of a highly selective plasma-kallikrein synthetic inhibitor on contact activation relating to kinin generation, coagulation and fibrinolysis", *Thrombosis Research*, **57**, 889-895 (1990).



## 4. Biologically Active Substances – Polyphenols –

### A. Polyphenols

#### a. Theaflavins, Black Tea Extracts

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

#### b. Catechins, green tea extracts

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

#### c. Isoflavones, Soybean E green tea extracts

Wako Cat. #	Description	Package Size	Appearance	Condition
040-27741	Daidzin, from Soybean, 98+%	10 mg	Lyophilized	2-10°C
046-27743		100 mg		
043-28071	Daidzein, from Soybean, 98+%	10 mg	Lyophilized	
049-28073		100 mg		
077-04691	Glycitin, from Soybean, 98+%	10 mg	Lyophilized	
073-04693		100 mg		
070-04701	Glycitein, from Soybean, 98+%	10 mg	Lyophilized	
076-04703		100 mg		
070-04681	Genistin, from Soybean, 98+%	10 mg	Lyophilized	
076-04683		100 mg		
546-00171	Genistein, 98+%	20 mg	Lyophilized	
093-04771	Isoflavon (Aglycon), Crude from Soybean, 95+%	1 g	Lyophilized	

Please visit  
our homepages!

**Wako Online Catalog**



<http://search.wako-chem.com>

**Wako USA homepage**



<http://www.wakousa.com>

**Wako GmbH homepage**



<http://www.wakochemicals.de>

## 5. Enzymes Inhibitors – HMG-CoA Reductase Inhibitor–

### A. Enzyme Inhibitors

#### a. HMG-CoA Reductase Inhibitors

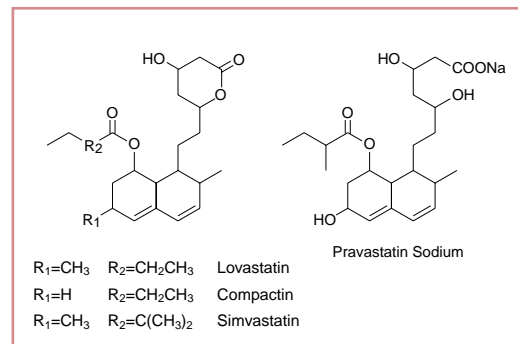
Competitive inhibitors of 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase are the rate limiting enzymes in cholesterol biosynthesis. By blocking the conversion of HMG-CoA to the cholesterol precursor mevalonate, these agents inhibit hepatic synthesis of cholesterol, causing a subsequent stimulation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

#### Reference:

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

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

\*: Not available for sale in the US.



## 6. Cell Component of Gram-positive and Gram-negative bacteria

### A. Peptidoglycans

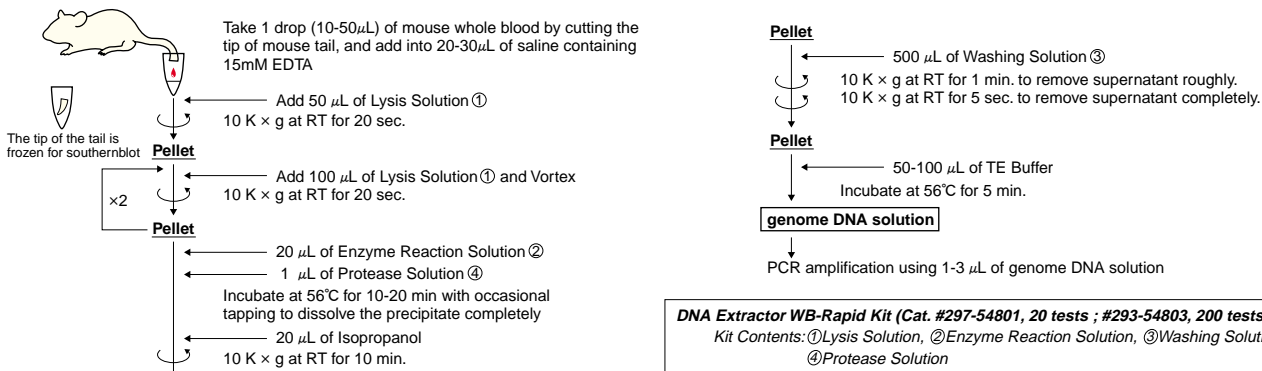
Wako Cat. #	Description	Package Size	Appearance	Condition
167-20241	<b>Peptidoglycan Type I, from <i>Enterococcus faecalis</i>, 90+%</b>	1 mg	Lyophilized	-20°C, D/I
164-20251	<b>Peptidoglycan Type II, from <i>Lactobacillus acidophilus</i>, 90+%</b>	1 mg		
161-20261	<b>Peptidoglycan Type III, from <i>Staphylococcus aureus</i>, 90+%</b>	1 mg		

#### [Related Products]

Wako Cat. #	Description	Package Size	
297-51501	<b>SLP Reagent Set</b>	for 3mL	Peptidoglycan and β-glucan Detection Reagent, 2-10°C
295-53001	<b>SLP Single Reagent Set</b>	25 tests	
162-18101	<b>Peptidoglycan, from <i>Micrococcus luteus</i></b>	2 mL (2μg)	Applicable for Standard for SLP Reagent Set, 2-10°C

### Simplified Application to prepare PCR template DNA for screening of transgenic and knockout mice

40 min-DNA extraction, followed by identification of PCR-amplified genome DNA in half a day has been fulfilled!



# 7. Immunology – Monoclonal Antibodies, Cell Separation –

## A. Antibodies

### Antibodies for Apoptosis Research

See C. Antibodies for Apoptosis Research in 2. Apoptosis Research (page number 4)

#### Anti Human COX-1, MAb [Clone: hPES 01]

012-18511 500 $\mu$ g (500 $\mu$ L)

-20°C, D/I, Liquid

Prepared in PBS solution containing no preservative.

Subclass: IgG

Specificity: Reacts with COX-1 of human and sheep.

Working Dilution: Westernblot: 1 : 200

#### References:

1. Ehara, H., et al., *Biochim. Biophys. Acta*, **960**, 35 (1988).
2. Ueda, N., et al., *Biochim. Biophys. Acta*, **1344**, 103 (1997).

#### Anti Human COX, Rabbit

015-18501 for 100 $\mu$ L

-20°C, Lyophilized

Reconstitute in 100 $\mu$ L distilled water to make solution containing 3% BSA in 0.9% sodium chloride.

Specificity: Reacts with COX-1 of human, rat, mouse, bovine and sheep, and COX-2 of human, rat and mouse.

Working Dilution: Westernblot: 1 : 1,000~1 : 2,000

#### References:

1. Kawada, N., et al., *Gastroenterology*, **103**, 1026 (1992).
2. Ishimura, K., et al., *Histochemistry*, **99**, 485 (1993).

#### Anti soluble Guanylate Cyclase (sGC), MAb [Clone: mAB3221]

019-17801 20 $\mu$ g (40 $\mu$ L)

-20°C, D/I, Liquid

Prepared from culture supernatant and prepared in glycine-Tris solution (pH 7.4). Contains no preservatives and stabilizers.

Isotype: IgG<sub>1</sub>

Specifically reacts with rat, bovine and human sGC, and strengthens in the reactivity on activation of sGC by NO, probably, due to the conformational changes of the enzyme and its associated antibody-antigen complex.

Working Dilution :

Westernblot 1 : 5,000 ; Immunofluorescence 1 : 250

#### Reference:

Tsuyama, S., et al., *FEBS Lett.*, **455**, 291 (1999).

#### Anti soluble Guanylate Cyclase (sGC), MAb, NO insensitive [Clone: mAB28131]

017-18201 20 $\mu$ g (40 $\mu$ L)

-20°C, D/I, Liquid

Prepared from culture supernatant and prepared in glycine-Tris solution (pH 7.4). Contains no preservatives and stabilizers.

Isotype: IgG<sub>1</sub>

Specifically reacts with rat, bovine and human  $\beta$ -subunit of sGC, but not strengthened in the reactivity on activation of sGC by NO.

Working Dilution:

Westernblot 1 : 5,000; Immunofluorescence 1 : 250

#### Anti Rat iNOS, MAb [Clone: A2]

012-18631 for 1mL (2 $\mu$ g/vial)

-20°C, Lyophilized

Lyophilized form in 20 mmol/L HEPES solution (pH 7.3) containing 0.1% BSA as a stabilizer.

Subclass: IgG<sub>1</sub>

Specificity: Reactive with iNOS of rat and mouse.

Working Dilution:

Western blot: 1 : 1,000~1 : 3,000

Immunofluorescence 1 : 1

#### Reference:

Dawson, T.M., et al., *Meth. Enzymol.*, **268**, 349 (1996).

#### Anti Rat nNOS, MAb [Clone: C7]

019-18641 for 1mL (40 $\mu$ g/vial)

-20°C, Lyophilized

Lyophilized form in 20 mmol/L HEPES solution (pH 7.3) containing 0.1% BSA as a stabilizer.

Subclass: IgG<sub>1</sub>

Specificity:

Specific for rat nNOS. Does not react with eNOS and iNOS.

Working Dilution:

Western blot 1 : 500

Immunofluorescence 1 : 10

#### References:

1. Bredth, D.S. et al., *Neuron*, **7**, 615 (1991).
2. Lin, C.S. et al., *Biochem. Biophys. Res. Commun.*, **253**, 388 (1998).

WAKO PRODUCT UPDATE

## B. Cell Separation

Wako Cat. #	Description	Applicability	Package Size	Cell Recovery (%)	B cell contamination (%)	Condition	Note
147-06721	Nylon Fiber Column T	mouse T cell purification	10 syringes $\times$ 0.5 g	13~25	~15	RT in the dark	Sterilized by gamma-ray radiation
143-07041	Nylon Fiber Column T (L-Type)	human, rabbit and rat T cell purification	10 syringes $\times$ 1.0 g	25~35	~15		

Reference: Julius, M.H., et al., A rapid method for the isolation of functional thymus-derived murine lymphocytes, *Eur. J. Immunol.*, **3**, 645-649 (1973).



## 8. Histochemistry – Effective Embedding Medium for Mouse and Rat Tissue –

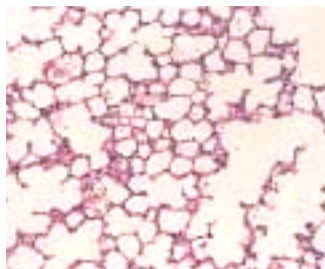
### A. Embedding Medium for Mouse and Rat tissue

#### Pathoprep® 546

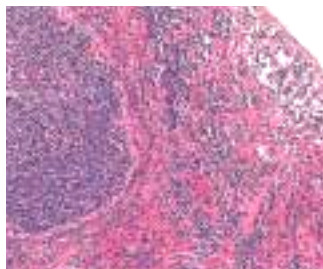
167-20501 2kg × 3

Melting Point: 54~56°C

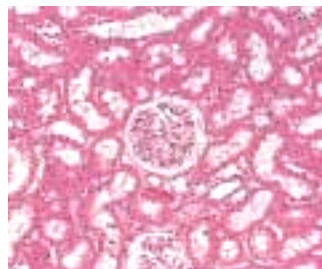
Melting Temperature: 58°C



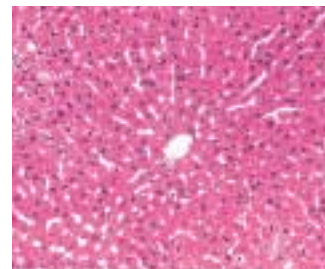
Mouse Lung (HE staining) × 10



Mouse Spleen (HE staining) × 10



Rat Kidney (HE staining) × 10



Rat Liver (HE staining) × 10

#### [Related Products]

Pathoprep® 568 [Melting Point : 56~58°C; 162-18961; 500g × 12]

Pathoprep® 580 [Melting Point : 58~60°C; 165-19551; 2kg × 3]

- Please visit our online catalog to search for other products from Wako ; <http://search.wako-chem.com>
- This brochure may contain products that cannot be exported to your country due to regulations.
- Bulk quote requests for some products are welcomed. Please contact us.

01Y15IBK

#### Wako Pure Chemical Industries, Ltd.

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

#### Wako Chemicals USA, Inc.

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

#### Wako Chemicals GmbH

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