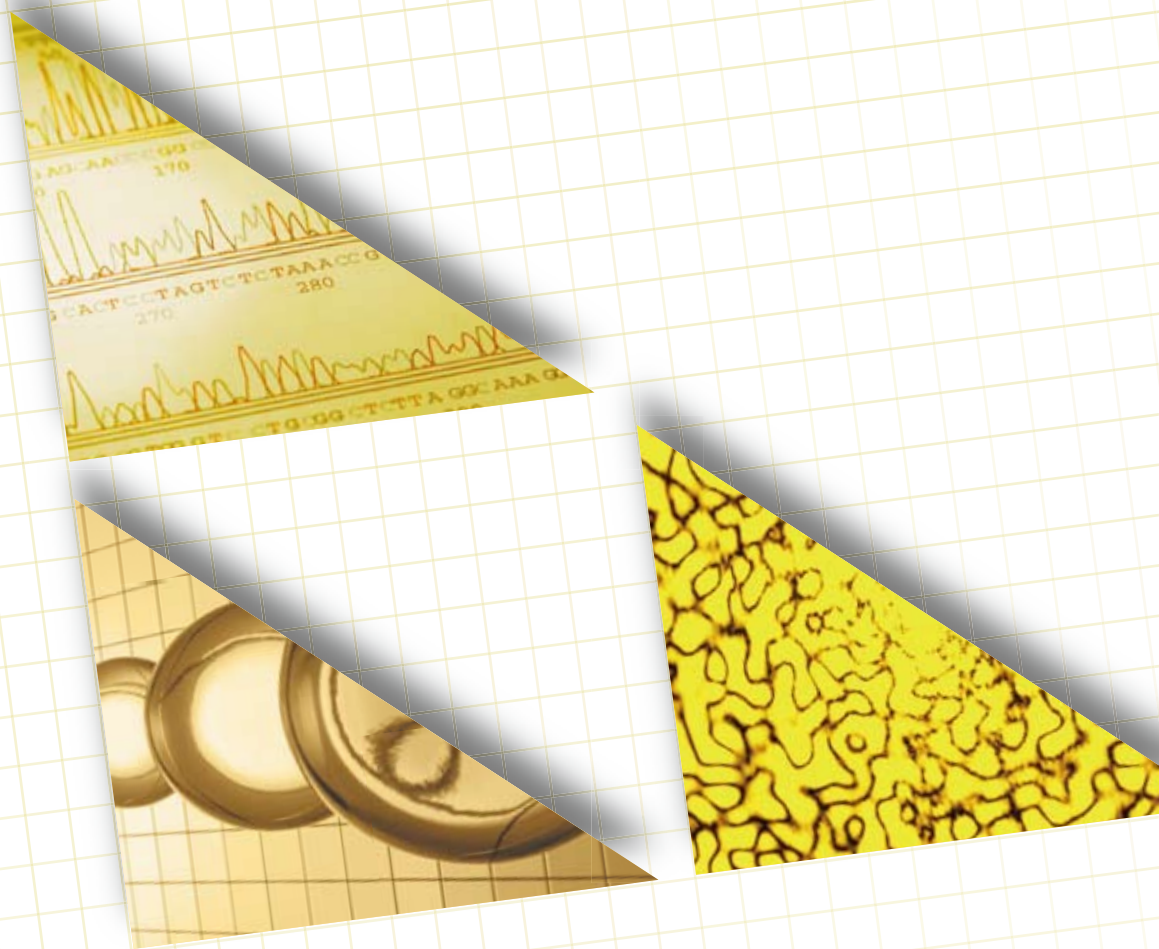


for Research Use Only

Protein Research

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2. Purification Reagents
3. Determination Kits
4. Modification Reagents
5. Tag Antibodies



Wako

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B				HA Peptide	12	Saponin, from Soybeans	1
	BAP	8		<i>n</i> -Heptyl- β -D-thiogluco-pyranoside	2	SDS [Sodium Dodecyl Sulfate]	1
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	Biotin- (AC ₅) ₂ -OSu	5		Hydroxylammonium Chloride	8	Sodium <i>N</i> -Dodecanoylsarcosinate	2
	Biotin- (AC ₅) ₂ Sulfo-Osu	5		<i>N</i> -Hydroxysuccinimidyl Iodoacetate [SIA]	7	SPDP	7
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	Biotin-OSu	5	K			Sulfo-EMCS	7
	Biotin-PEAC ₅ -maleimide	5		KMUS	7	Sulfo-GMBS	7
	Biotin-PE-maleimide	5	L			Sulfo-HMCS	7
	Biotin-SAM Formation Reagent	7		<i>N</i> -Lauroylsarcosine	2	Sulfo-KMCS	7
	Biotin-SS-Sulfo-OSu	5		LDS [Lithium Dodecyl Sulfate]	1	Sulforhodamine 101 Acid Chloride	8
	Biotin-Sulfo-OSu	5	M			T	
	<i>N,N</i> -Bis (3-D-gluconamidopropyl) deoxycholamide	2		MEGA-10	2	Tamavidin 2, recombinant	6
	Brij™ 35	1		MEGA-8	2	Tamavidin 2-HOT, recombinant	6
	Brij™ 58	1		MEGA-9	2	Tamavidin 2-LPI, recombinant	6
						Tamavidin 2-REV, recombinant	6
C						TCEP hydrochloride	8
	Carboxy-terminal DYKDDDDK-BAP, recombinant, Solution ..	12				Trehalose C8, C10, C12, C14, C16	2
	Cell Lysis Buffer M [for mammalian cells]	1				Triton™ X-100, X-114	1
	Cetyldimethylethylammonium Bromide	2				Tween® 20, 40, 80, 85	1
	CFSE	8				U	
	CHAPS	2				<i>n</i> -Undecyl- β -D-maltoside	2
	CHAPSO	2				Urea	8
	CIAP	8	N				
				NDSB-195	1		

1. Extracting and Solubilizing Reagents

(1) Protein Extraction Buffers

Product Name	Grade	Pkg. Size	Wako Cat. No.	Storage
RIPA Buffer [for mammalian cells]	for Genetic Research	100 mL	182-02451	Keep at 2-10°C.
		250 mL	188-02453	
The protein extraction buffer is available for a Western Blot analysis, an immunoprecipitation, a protein purification, and a reporter assay. Protease inhibitor is not included.				
Cell Lysis Buffer M [for mammalian cells]	for Genetic Research	100 mL	038-21141	
		250 mL	034-21143	
The product is a cytolytic buffer milder than RIPA Buffer and is appropriate for extraction of proteins in cytoplasm without lysing the nuclei. The protein extraction buffer is available for a Western Blot analysis, an immunoprecipitation, a protein purification, and a reporter assay. Protease inhibitor is not included.				

(2) Solubilizing Agents

We have many assorted types with a focus on detergents in stock. Please use them as a solubilizing agent or a cleaning agent.

Product Name	Grade	Pkg. Size	Wako Cat. No.	Storage
Polyoxyethylene (20) Sorbitan Monolaurate [Tween® 20 equivalent]	for Biochemistry	25 g	162-21112	-
		500 g	166-21115	
10 w/v% Polyoxyethylene (20) Sorbitan Monolaurate Solution [10 w/v% Tween® 20 equivalent]	for Molecular Biology	100 mL	161-24801	Keep at 2-10°C.
Polyoxyethylene (20) Sorbitan Monopalmitate [Tween® 40 equivalent]	Practical Grade	25 g	160-11522	-
		500 g	164-11525	
Polyoxyethylene (20) Sorbitan Monooleate [Tween® 80 equivalent]	Practical Grade	25 g	160-21772	Keep at 2-10°C.
		500 g	164-21775	
		3 L	162-21771	
Polyoxyethylene (20) Sorbitan Trioleate [Tween® 85 equivalent]	Practical Grade	25 g	161-11552	-
		500 g	165-11555	
Polyoxyethylene (10) Octylphenyl Ether [Triton® X-100 equivalent]	for Biochemistry	500 mL	169-21105	-
		3 L	167-21101	
Polyoxyethylene (20) Cetyl Ether [Brij™ 58 equivalent]	for Biochemistry	5 g	163-21061	-
		25 g	169-21063	
Polyoxyethylene (23) Lauryl Ether [Brij™ 35 equivalent]	for Biochemistry	100 g	160-21071	-
		500 g	162-21075	
Polyoxyethylene (8) Octylphenyl Ether [Triton™ X-114 equivalent]	for Biochemistry	100 mL	164-19881	-
NIKKOL BL-9EX	Wako Special Grade	5 g	149-05701	
NDSB-195	for Cellbiology	5 g	148-08831	Keep at -20°C.
		25 g	146-08832	
NDSB-256	for Cellbiology	5 g	141-07961	
		25 g	149-07962	
Sulfobetain 3-14	for Cellbiology	5 g	196-15721	
		25 g	194-15722	
Saponin, from Soybeans	Wako 1st Grade	1 g	198-08853	Keep at 2-10°C.
		5 g	192-08851	
		25 g	190-08852	
SDS [Sodium Dodecyl Sulfate]	for Biochemistry	25 g	197-07142	-
		100 g	199-07141	
		500 g	191-07145	
LDS [Lithium Dodecyl Sulfate]	for Biochemistry	10 g	121-02741	Keep at 2-10°C.
Lithium 3,5-Diiodosalicylate	for Biochemistry	25 g	123-02262	-
2-Amino-2-hydroxymethyl-1,3-propanediol Dodecylsulfate	for Biochemistry	10 g	209-08511	Keep at 2-10°C.

(2) Solubilizing Agents –continued–

Product Name	Grade/ Dojindo Code No.	Pkg. Size	Wako Cat. No.	Storage
Sodium Cholate	for Biochemistry	5 g	199-08501	-
		25 g	197-08502	
<i>N</i> -Lauroylsarcosine	Wako 1st Grade	25 g	129-03722	
		500 g	123-03725	
Sodium <i>N</i> -Dodecanoylsarcosinate	Wako 1st Grade	25 g	192-10382	
		50 g	190-10383	
		100 g	194-10381	
		500 g	196-10385	
Cetyldimethylethylammonium Bromide	for Biochemistry	100 g	035-17741	
Hexadecyltrimethylammonium Chloride	Wako 1st Grade	5 g	089-06031	
		25 g	087-06032	
		500 g	081-06035	
Guanidine Thiocyanate	for Biochemistry	25 g	073-02312	
		100 g	075-02311	
		500 g	077-02315	
BIGCHAP	Dojindo (B043)	1 g	348-06171	
		5 g	344-06173	
CHAPS	Dojindo (C008)	1 g	341-04721	
		5 g	347-04723	
		25 g	349-04722	
		100 g	345-04724	
CHAPSO	Dojindo (C020)	1 g	347-05161	
		5 g	343-05163	
<i>N,N</i> -Bis (3- <i>D</i> -gluconamidopropyl) deoxycholamide [deoxy-BIGCHAP]	Dojindo (D045)	500 mg	346-05614	
Sodium Cholate Monohydrate, Purified	Dojindo (C321)	5 g	346-06471	
		25 g	344-06472	
Sodium Deoxycholate (for Protein Crystallization)	Dojindo (D520)	1 g	341-08121	
		5 g	347-08123	
<i>n</i> -Dodecyl- β - <i>D</i> -maltoside	Dojindo (D316)	1 g	341-06161	Keep at 2-10°C.
		5 g	347-06163	
<i>n</i> -Decyl β - <i>D</i> -Maltopyranoside	Dojindo (D382)	1 g	349-08041	
		5 g	345-08043	
Sodium Deoxycholate (for Protein Crystallization)	Dojindo (D520)	1 g	341-08121	-
		5 g	347-08123	
<i>n</i> -Heptyl- β - <i>D</i> -thioglucopyranoside	Dojindo (H015)	1 g	346-05371	Keep at 2-10°C.
		5 g	342-05373	
MEGA-8	Dojindo (M014)	1 g	348-05071	-
		5 g	344-05073	
MEGA-9	Dojindo (M015)	1 g	345-05081	
		5 g	341-05083	
MEGA-10	Dojindo (M016)	1 g	342-05091	
		5 g	348-05093	
<i>n</i> -Nonyl- β - <i>D</i> -thiomaltoside	Dojindo (N373)	1 g	343-06861	
<i>n</i> -Octyl- β - <i>D</i> -glucopyranoside	Dojindo (O001)	250 mg	340-05031	Keep at 2-10°C.
		1 g	346-05033	
		5 g	344-05034	
<i>n</i> -Octyl- β - <i>D</i> -thioglucoside	Dojindo (O003)	1 g	349-05361	
		5 g	345-05363	
<i>n</i> -Octyl- β - <i>D</i> -maltoside	Dojindo (O393)	500 mg	340-90283	
3-Oxatridecyl- α - <i>D</i> -mannoside	Dojindo (O401)	500 mg	349-90851	
Trehalose C8*	Dojindo (T459)	500 mg	346-09031	
Trehalose C10*	Dojindo (T460)	500 mg	343-09041	
Trehalose C12*	Dojindo (T461)	500 mg	340-09051	
Trehalose C14*	Dojindo (T464)	500 mg	347-91511	
Trehalose C16*	Dojindo (T465)	500 mg	344-91521	
<i>n</i> -Undecyl- β - <i>D</i> -maltoside	Dojindo (U214)	1 g	343-09063	-
		5 g	347-09061	

* Trehalose (ester type) non-ionic detergents

(3) Protease Inhibitors

We have many assorted types of protease inhibitors in accordance with target protein in stock.

Product Name	Pkg. Size	Wako Cat. No.	Grade	Storage
Protease Inhibitor Mixture, DMSO Solution for Mammalian Cell & Tissue Extracts	1 vial	160-19501	for Biochemistry	Keep at -20°C.
[Inhibition Target] serine proteases; cysteine proteases; aspartic proteases; aminopeptidase B; leucine aminopeptidase				
Protease Inhibitor Mixture, DMSO Solution for Fungal & Yeast Extracts	1 mL	165-20281		
[Inhibition Target] serine proteases; cysteine proteases; aspartic proteases; metalloproteases				
Protease Inhibitor Mixture for Protease and Esterase	1 vial	167-19511		
[Inhibition Target] serine proteases; cysteine proteases; metalloproteases; esterases; trypsin-like proteases				

Product Name	Pkg. Size	Wako Cat. No.	Grade	Storage
Protease Inhibitor Cocktail Solution I (x 100)	1 mL	167-24381	for Cellbiology	Keep at -20°C.
5 phosphatase inhibitor mixture [Inhibition Target] serine/threonine phosphatases, tyrosine phosphatases, and dual-specificity phosphatases [Composition] sodium fluoride, sodium orthovanadate, sodium pyrophosphate, β -glycerophosphate, and sodium molybdate				
Protease Inhibitor Cocktail Solution II (x 100)	1 mL	160-24371		
5 phosphatase inhibitor mixture [Inhibition Target] acid phosphatases; alkaline phosphatases; tyrosine phosphatases [Composition] sodium fluoride, sodium tartrate, sodium orthovanadate, imidazole, and sodium molybdate				
Protease Inhibitor Cocktail Set I, Animal-derived-free (for general use) (x 100), Lyophilized	1 mL	165-26021		
	1 mL x 5	161-26023		
5 inhibitor mixture solution. It replaces aprotinin from bovine lung with recombinant aprotinin produced with no animal by-products. [Inhibition Target] a wide variety of proteases and esterases.				
Protease Inhibitor Cocktail Set III DMSO Solution, (EDTA free) (x 100)	1 mL	163-26061		
	1 mL x 5	169-26063		
6 inhibitor mixture solution being suitable for experiments targeted on metal-binding proteins in mammalian cells, tissue extracts, and bacterial extracts. It does not contain EDTA or other metalloproteinase inhibitors. [Inhibition Target] a wide range of proteases including aminopeptidases.				
Protease Inhibitor Cocktail Set III, DMSO Solution, Animal-derived-free (EDTA free)(x 100)	1 mL	160-26071		
	1 mL x 5	166-26073		
6 inhibitor mixture solution being suitable for experiments targeted on metal-binding proteins in mammalian cells, tissue extracts, and bacterial extracts. It inhibits a wide range of proteases including aminopeptidases. It does not contain EDTA or other metalloproteinase inhibitors. It replaces aprotinin from bovine lung with recombinant aprotinin produced with no animal by-products.				
Protease Inhibitor Cocktail Set IV, DMSO Solution (for Fungal and Yeast) (x 100)	1 mL	167-26081		
	1 mL x 5	163-26083		
4 inhibitor mixture DMSO solution, being suitable for use in mold and yeast extracts. [Inhibition Target] serin proteases, cystein proteases, metalloproteases, asparatic proteases.				
Protease Inhibitor Cocktail Set V, DMSO Solution (EDTA free)(x 100), Lyophilized	1 mL	162-26031		
	1 mL x 5	168-26033		
4 inhibitor mixture solution, being suitable for experiments targeted on metal-binding proteins and recombinant proteins. In addition, also useful for metal-affinity column chromatography. [Inhibition Target] serin proteases, cystein proteases, metalloproteases, asparatic proteases.				
Protease Inhibitor Cocktail Set VI, DMSO Solution (for Plant)(x 100)	1 mL	164-26091		
	1 mL x 5	160-26093		
6 inhinitor mixture solution, being suitable for plant extracts. [Inhibition Target] Serin Proteases, Cystein Proteases, Trypsin-like Proteases, Aminopeptidase B & Leucine Aminopeptidase, Asparatic Proteases, Metalloproteases.				
Protease Inhibitor Cocktail Set VII, DMSO Solution (for Histidine-tagged Protein)(x 100)	1 mL	167-26101		
	1 mL x 5	163-26103		
EDTA-free 5 inhibitor mixture solution, being suitable for purification of histidine-tagged proteins. [Inhibition Target] Serin Proteases, Cystein Proteases, Aminopeptidase B & Leucine Aminopeptidase, Asparatic Proteases, Metalloproteases.				

2. Purification Reagents

(1) Dialysis Membranes · Seamless Cellulose Tubes

A lineup of dialysis membrane type Dialysis Membrane for manipulation including a dialysis of samples, buffer changes, condensation is prepared. The pore sizes and the thickness of membranes are different between the dialysis membranes and the seamless cellulose tubes that results in differences in molecular weight cut off, physical strength, and dialysis speed.

Product Name	Grade	Pkg. Size	Wako Cat. No.
Dialysis Membrane, Size 8 average of pore size: 15-50Å, molecular weight cut off (MWCO): 14,000; width: 10 mm; diameter: 6 mm; thickness: 51 μm	for Biochemistry	7.5 m	046-30911
		30 m	042-30913
Dialysis Membrane, Size 20 average of pore size: 15-50Å, MWCO: 14,000; width: 25 mm; diameter: 16 mm; thickness: 20 μm	for Biochemistry	30 m	043-30921
Dialysis Membrane, Size 27 average of pore size: 25-50Å, MWCO: 14,000; width: 34 mm; diameter: 22 mm; thickness: 23 μm	for Biochemistry	30 m	040-30931
Dialysis Membrane, Size 36 average of pore size: 25-50Å, MWCO: 14,000; width: 44 mm; diameter: 28 mm; thickness: 20 μm	for Biochemistry	30 m	047-30941
Seamless Cellulose Tubing, Small Size 18 average of pore size: 25Å, MWCO: 12,000-16,000; width: 25 mm; diameter: 16 mm; thickness: 28 μm	for Biochemistry	30 m	192-15441
Seamless Cellulose Tubing, Small Size 24 average of pore size: 25Å, MWCO: 12,000-16,000; width: 32 mm; diameter: 20 mm; thickness: 30 μm	for Biochemistry	30 m	199-15451

3. Determination Kits

(1) Protein Assay Bradford Reagent

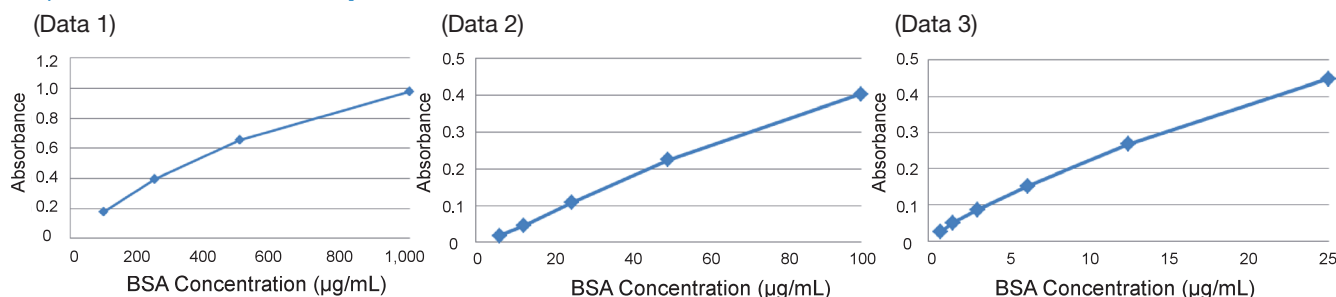
This product is protein quantification reagent with Coomassie Brilliant blue G-250 (CBB). When CBB dye binds proteins in an acidic solution, absorption maximum of the dye shifts from 465 nm to 595 nm. It is different from Lowry method and BCA method, the quantitative is not affected if reducing agent may be contained in the sample. Detergents, under a certain concentration, in a measurement sample does not affect the measurement. (See the effect of coexisting materials below.)

[Examples of proper use in the range of measurement]

	Data 1	Data 2	Data 3
Used instruments	Tube	Tube	Microplate
Measurement range	100-1,000 μg/mL	6.25-100 μg/mL	0.78-25 μg/mL
Sample	10 μL	20 μL	150 μL
Reagent	500 μL	380 μL	150 μL
Reaction time	Stand for 10 min. at room temperature.		
wavelength	595 nm		

Determine the mixture ratio between a sample and this product depending on the range of measurement using examples in the table.

[Examples of measurement results]



[Effect of coexisting materials]

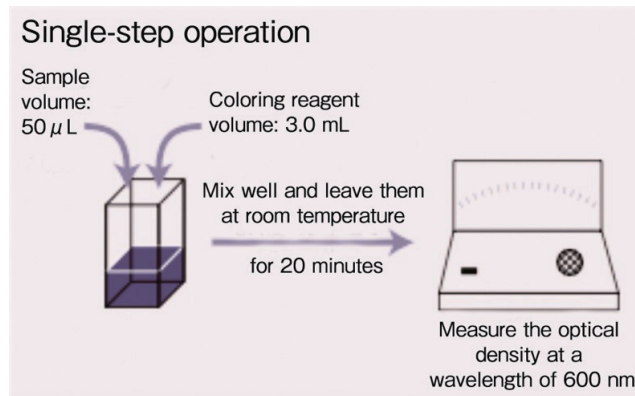
When a solution containing proteins is measured with this product, the substances in the right table have already been shown not to affect the measurement if they are under the indicated concentration.

Substance	Concentration	Substance	Concentration
CHAPS	5 %	NP-40	0.1 %
Triton X-100	0.1 %	Ethanol	10 %
Tween 20	0.1 %	Glycerol	20 %
SDS	0.025 %	Methanol	10 %

Product Name	Grade	Pkg. Size	Wako Cat. No.
Protein Assay Bradford Reagent	for Protein Determination	1 L	168-25911

(2) Protein Assay Rapid Kit *Wako*

- 20 minute pyrogallol red-molybdate protein assay
- The dynamic range is quite wide from 60 - 2,000 µg/mL.
- Less non-specific adsorptive and less self-aggregate, therefore, cuvette or microplate can be rinsed with water.
- High sensitive one step operation at room temperature.



Product Name	Grade	Pkg. Size	Wako Cat. No.	Storage
Protein Assay Rapid Kit <i>Wako</i>	for Protein Determination	100 tests	293-56101	Keep at 2-10°C.
		400 tests	299-56103	

4. Modification Reagents

(1) Biotin Labeling Reagents [Dojindo Laboratories' products]

The interaction between avidin and biotin is remarkably strong. The nature has been widely used for sensitive analyses. Dojindo Laboratories (Japan) deals with biotin labeling agents for the amino groups, the sulfhydryl groups, and the aldehyde groups of proteins.



Detection	Targeted functional group	Product Name	Pkg. Size	Wako Cat. No.	Dojindo code No.	Storage
Fluorescence	Amino group	Biotin-Osu	10 mg	346-06351	B304	Keep at -20°C.
		Biotin-AC ₅ -OSu	10 mg	343-06361	B305	
		Biotin-(AC ₅) ₂ -OSu	10 mg	340-06371	B306	
		Biotin-Sulfo-Osu	10 mg	345-06821	B319	
		Biotin-AC ₅ Sulfo-OSu	10 mg	348-06811	B320	
		Biotin-(AC ₅) ₂ Sulfo-Osu	10 mg	341-06801	B321	
		Biotin-SS-Sulfo-Osu	100 mg	348-09091	B572	
	SH group	Biotin-PE-maleimide	10 mg	347-06381	B300	
		Biotin-PEAC ₅ -maleimide	10 mg	344-06391	B299	
		Biotin-HPDP	50 mg	341-09101	B573	
	Aldehyde group; Carboxylic acid	Biotin-hydrazide	10 mg	347-06401	B303	
		Biotin-AC ₅ -hydrazide	10 mg	344-06411	B302	
		Biotin-(AC ₅) ₂ -hydrazide	10 mg	341-06421	B301	
		ARP (Aldehyde Reactive Probe)	10 mg	340-07611	A305	

(2) Biotin · Avidin

Biotin is a kind of water-soluble vitamin and shows a high degree of affinity and specificity to avidin. A target molecule labeled with biotin can be specifically detected by binding with avidin.

Tamavidin 2, recombinant

Tamavidin 2 is a soluble recombinant avidin which is purified from *E-coli* expressed mushroom (*Pleurotus cornucopia*) Tamavidin 2 cDNA. The product is an avidin-like biotin-binding protein. It can detect a biotinylated antigen by forming an avidin-biotin bond as well as avidin and streptavidin. It is a tetramer which consists of 4 subunits (60kDa) and each subunit has a biotin binding domain and 5 tyrosine residues. A lineup of recombinants of Tamavidin 2 cloned from *Pleurotus cornucopiae* is also available.

(Wako Cat. No.) Product Name	Isoelectric Point (pI) ^{*1}	Thermo-stability ^{*2}	Organic solvent tolerance	Association rate constant of biotin ($ka(M^{-1}S^{-1})$)	Dissociation rate constant of biotin ($kd(S^{-1})$)	Molecular weight (tetramer)
(209-18261) Tamavidin 2	7.4	$T_m = 85^{\circ}C$	Tolerant	$(1.0 \pm 0.3) \times 10^6$	below detection limit ^{*4}	approx. 60 kDa
(203-19401) Tamavidin 2-REV	8.0	$T_m = 75^{\circ}C$	-	$(1.3 \pm 0.5) \times 10^6$	$(1.5 \pm 0.4) \times 10^{-5}$	approx. 60 kDa
(202-19351) Tamavidin 2-LPI	6.0 (actual measured value)	$T_m = 65^{\circ}C$	-	$(1.2 \pm 0.1) \times 10^6$	below detection limit	approx. 60 kDa
(209-19361) Tamavidin 2-HOT	7.23	High tolerance ^{*3}	High tolerance (40-50% DMSO)	$(3.0 \pm 1.7) \times 10^6$	below detection limit	approx. 60 kDa

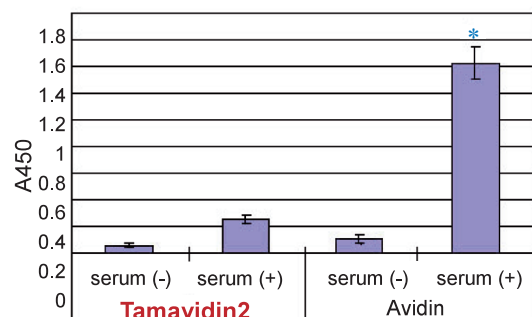
*1: The isoelectric points were calculated by the amino acid sequences except for the case of Tamavidin 2-LPI.

*2: The T_m values show the temperatures after 20-minute heat at which their activities dropped by 50% before heating. The activity was evaluated by an assay using fluorescent labeled biotin.

*3: The biotin binding of Tamavidin 2-HOT was not reduced after 30-minute treatment at 99.9°C and the T_m value defined in *2 could not be calculated.

*4: Detection limit: 5×10^{-6} ($kd(S^{-1})$)

[Data] - Non-specific binding of Tamavidin 2 with human serum -



A non-specific binding of human serum sample was evaluated with Tamavidin 2 coated plates and avidin coated plates. A non-specific binding of human serum sample with a Tamavidin 2 coated plate was lower than that with an avidin coated plate. (t-test against Tamavidin 2: * $p < 0.001$, $n=8$)

Product Name	Pkg. Size	Wako Cat. No.	Grade	Storage
(+) - Biotin	100 mg	023-08711	Wako 1st Grade	Keep at 2-10°C.
	500 mg	023-08716		
	1 g	029-08713		
	5 g	021-08712		
	10 g	027-08714		
Avidin, from Egg White	10 mg	017-21011	for Biochemistry	Keep at -20°C.
	50 mg	013-21013		
Avidin, Neutralized, from Egg White	10 mg	015-24231	for Immunochemistry	
	50 mg	011-24233		
Tamavidin 2, recombinant	1 mg	209-18261		
	5 mg	205-18263		
	25 mg	203-18264		
Tamavidin 2-REV, recombinant	1 mg	203-19401		
	5 mg	209-19403		
Tamavidin 2-LPI, recombinant	1 mg	202-19351		
	5 mg	208-19353		
Tamavidin 2-HOT, recombinant	1 mg	209-19361		
	5 mg	205-19363		

(2) Biotin · Avidin –continued–

Product Name	Grade/Manufacturer	Pkg. Size	Wako Cat. No.	Storage
Streptavidin, Type II	for Biochemistry	1 mg	198-11641	Keep at -20°C.
		5 mg	194-11643	
		25mg	192-11644	
Streptavidin, recombinant	for Biochemistry	10mg	190-14261	
Streptavidin, from <i>Streptomyces avidinii</i>	for Immunochemistry	1 mg	197-12853	
		5 mg	195-12854	
		25 mg	191-12851	
Biotin-SAM Formation Reagent	Dojindo (B564)	1 μmol x 3	340-91481	Keep at 2-10°C.

(3) Cross-linkers (Bifunctional reagents)

Cross-linkers have a reaction group, which responds to a specific functional group of a molecule, in a terminal. It is available for labeling of proteins, antibodies, and nucleic acids.

Product Name	Grade/Dojindo Code No.	Pkg. Size	Wako Cat. No.	Storage
<i>N</i> -Succinimidyl 3-Maleimidopropionate [BMPS]	for Biochemistry	100 mg	193-16831	Keep at 2-10 °C.
		1 g	199-16833	
<i>N</i> -Succinimidyl 4-(<i>N</i> -Maleimidomethyl) cyclohexane carboxylate [SMCC]	for Biochemistry	100 mg	190-16841	Keep at -20 °C.
		1 g	196-16843	
Ethylene Glycol Bis(succinimidylsuccinate) [EGS]	for Biochemistry	100 mg	051-08531	Keep at 2-10 °C.
		1 g	057-08533	
<i>N</i> -Hydroxysuccinimidyl Iodoacetate [SIA]	for Biochemistry	100 mg	088-09801	Keep at -20 °C.
		500 mg	084-09803	
<i>N</i> -Hydroxysulfosuccinimide Sodium Salt [Sulfo-NHS•Na]	for Biochemistry	500 mg	087-09371	Keep at 2-10 °C.
1-Ethyl-3-(3-dimethylaminopropyl) carbodiimide Hydrochloride [EDC•HCl] [WSC•HCl]	Dojindo (W001)	5 g	348-03631	-
		25 g	346-03632	
		100 g	344-03633	
EMCS	Dojindo (E018)	50 mg	344-05051	Keep at 2-10 °C.
		100 mg	340-05053	
GMBS	Dojindo (G005)	50 mg	347-05041	
		100 mg	343-05043	
HMCS	Dojindo (H257)	50 mg	342-06191	
KMUS	Dojindo (K214)	50 mg	345-06201	
Sulfo-EMCS	Dojindo (S024)	50 mg	340-06011	
Sulfo-GMBS	Dojindo (S025)	50 mg	347-06021	
Sulfo-HMCS	Dojindo (S026)	50 mg	341-06041	
Sulfo-KMCS	Dojindo (S250)	50 mg	342-06211	
SPDP	Dojindo (S291)	100 mg	345-08261	
Dithiobis(succinimidyl undecanoate)	Dojindo (D537)	10 mg	347-08581	
		50 mg	343-08583	
Dithiobis(succinimidyl hexanoate)	Dojindo (D539)	10 mg	347-08601	
		50 mg	-	
Dithiobis(succinimidyl octanoate)	Dojindo (D538)	10 mg	344-08591	
		50 mg	-	

[Related Product]

Product Name	Grade	Pkg. Size	Wako Cat. No.	Storage
2-Iminothiolane Hydrochloride	for Biochemistry	500 mg	098-06421	Keep at -20°C.
		1 g	094-06423	

(4) Labeling Enzymes

Product Name	Grade	Pkg. Size	Wako Cat. No.	Storage
Peroxidase, from Horseradish [HRP]	for EIA	2,000 U	166-12881	Keep at -20°C.
		20,000 U	162-12883	
Alkaline Phosphatase, from <i>Escherichia coli</i> [BAP]	for Biochemistry	50 U	018-10693	
		100 U	012-10691	
Alkaline Phosphatase Solution, from Calf Intestine [CIAP]	for EIA	10 mg	016-14631	Keep at 2-10°C.

(5) Protein Labeling Agents

Detection	Targeted functional group	Product Name	λ_{ex}	Pkg. Size	Wako Cat. No.	Dojindo's code No.	Storage
			λ_{em}				
Fluorescence	Amino group	CFSE (cytoplasm-labeling agent)	496 516	10 mg	341-06443	C309	Keep at -20°C.
		FITC-I (labeling agent of an amino group in proteins)	495	100 mg	349-03661	F007	Keep at 2-10°C.
			520	500 mg	343-03664		
		IC3-OSu special packaging (labeling agent of an amino group in amino acids or peptides)	550 570	20 μ g x 3	348-91661	I271	Keep at -20°C.
		IC5-OSu special packaging (labeling agent of an amino group in amino acids or peptides)	640 660	20 μ g x 3	345-91671	I272	
Sulforhodamine 101 Acid Chloride (labeling agent of an amino group in proteins)	568 590~630	10 mg	345-05221	S016			

(6) Reducing Agents · Denaturing Agents

Reducing agents or denaturing agents used for pretreatment of labeling, cross-linking, and detection. It is available for solubilization, degeneration, and functional group formation.

Reducing Agents

Product Name	Grade	Pkg. Size	Wako Cat.No.	Storage
2-Mercaptoethanol	for Biochemistry	25 g	137-06862	-
		100 g	133-06864	
		2 mL x 5	139-06861	
(±)-Dithiothreitol	For SH Group Protection	100 mg	041-08971	Keep at 2-10°C.
		1 g	047-08973	
		5 g	045-08974	
		10 g	041-08976	
		25 g	049-08972	
3-Mercapto-1,2-propanediol	Wako Special Grade	25 mL	207-09232	
		500 mL	201-09235	
TCEP hydrochloride	for Biochemistry	1 g	205-18981	
		10 g	201-18983	

Denaturing Agents

Product Name	Grade	Pkg. Size	Wako Cat. No.	Storage
Guanidine Hydrochloride	for Biochemistry	100 g	078-01821	-
		500 g	070-01825	
		5 kg	074-01823	
8 mol/L Guanidinium Chloride Solution	for Biochemistry	200 mL	071-02891	Keep at 2-10°C.
Urea	for Biochemistry	100 g	215-00611	-
		500 g	217-00615	
		1 kg	215-00616	
		10 kg	213-00617	

Cleavage reagents

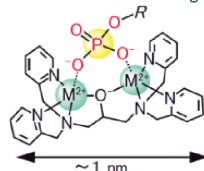
Product Name	Grade	Pkg. Size	Wako Cat. No.
Hydroxylammonium Chloride	Wako 1 st Grade	500 g	080-01485

Related products

Product Name	Grade	Pkg. Size	Wako Cat. No.	Storage
L-Cysteine Hydrochloride Monohydrate	JIS Special Grade	1 g	035-05271	-
		5 g	031-05273	
		25 g	033-05272	
		100 g	039-05274	
		500 g	037-05275	
Glutathione (Reduced Form)	Wako Special Grade	1 g	077-02011	Keep at 2-10°C.
		5 g	073-02013	
		50 g	071-02014	
		100 g	077-02016	



[Basic Structure of Phos-tag™]



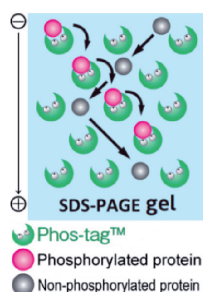
Phos-tag™ is a functional molecule that binds specifically to phosphorylated ions.

It is applicable for ...

- Specific separation of phosphorylated proteins ⇒ *Phos-tag™ Acrylamide*
- Detection using western blot ⇒ *Phos-tag™ Biotin*
- Purification ⇒ *Phos-tag™ Agarose*
- MALDI-TOF/MS ⇒ *Phos-tag™ Mass Analytical Kit*

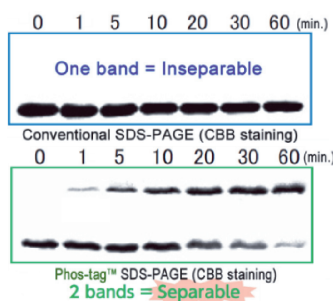
Principle of Phosphate group-affinity Electrophoresis

Phosphorylated proteins move while being bound by Phos-tag™ in the gel.



Application: Time course of phosphorylation by using Tyrosine Kinase Abl

Phosphorylated tyrosine was prepared by GST binding protein of tyrosine kinase Abl and the substrate peptide (Abtide) and separated with conventional SDS-PAGE and Phos-tag™ SDS-PAGE, respectively.



Description	Pkg. Size	Wako Cat. No.
Phos-tag™ Acrylamide AAL-107	2 mg	300-93523
	10 mg	304-93521
Phos-tag™ Acrylamide AAL-107 5mM Aqueous Solution	0.3 mL	304-93526
<i>Ready-to-Use Precast gels containing 50 μmol/L Phos-tag™</i>		
SuperSep Phos-tag™ (50 μmol/L), 10%, 13 wells	5 gels	193-16711
SuperSep Phos-tag™ (50 μmol/L), 10%, 17 wells	5 gels	190-16721
SuperSep Phos-tag™ (50 μmol/L), 12.5%, 13 wells	5 gels	195-16391
SuperSep Phos-tag™ (50 μmol/L), 12.5%, 17 wells	5 gels	193-16571
SuperSep Phos-tag™ (50 μmol/L), 15%, 13 wells	5 gels	193-16691
SuperSep Phos-tag™ (50 μmol/L), 15%, 17 wells	5 gels	196-16701
SuperSep Phos-tag™ (50 μmol/L), 17.5%, 13 wells	5 gels	197-16851
SuperSep Phos-tag™ (50 μmol/L), 17.5%, 17 wells	5 gels	194-16861
EasySeparator (An electrophoresis tank for SuperSep precast gels)	1 set	058-07681
Phos-tag™ Biotin BTL-104	10 mg	301-93531
Phos-tag™ Biotin BTL-105	10 mg	308-93541
Phos-tag™ Biotin BTL-111 1mM Aqueous Solution (Higher sensitivity)	0.1 mL	308-97201
Phos-tag™ Agarose	0.5 mL	302-93561
	3 mL	308-93563
Phos-tag™ Mass Analytical Kit	1 set	305-93551

5. Tag Antibodies



We created a lineup of monoclonal antibody and beads products for detecting and purifying DYKDDDDK tag, GST tag, c-Myc tag, GFP, GST, 6x His tag, MBP tag, V5 tag.

(1) Unlabeled Tag Antibodies

Product Name	Subclass Clone No.	Application	Pkg. Size	Wako Cat. No.	Storage	Grade		
GFP: Green Fluorescent Protein								
Anti Green Fluorescent Protein, Monoclonal Antibody (mFX75)	IgG2a·κ mFX73	IP	100 μL	012-20461	Keep at -20°C.			
			100 μL x 5	018-20463				
Anti Green Fluorescent Protein, Monoclonal Antibody (mFX75)	IgG2a·κ mFX73	WB	100 μL	012-22541				
Anti Green Fluorescent Protein, Rabbit, Polyclonal IS	-	IHC	20 μg	013-23811				
DYK tag: DYKDDDDK								
Anti DYKDDDDK tag, Monoclonal Antibody (1E6), Mouse *1	IgG2b 1E6	WB, IP, FCM, ChIP	200 μg	018-22381			Keep at -20°C.	
			1 mg	014-22383				
			5 mg	012-22384				
Anti DYKDDDDK tag, Monoclonal Antibody (6F7), Rat	IgG1 6F7	WB, IP, IHC, FCM	200 μg	018-23621				
			1 mg	012-23624				
His tag: HHHHHH (6 x Histidine) *2								
Anti 6x Histidine, Monoclonal Antibody, mouse (9F2)	IgG1 9F2 (C-terminal specific)	WB, IP	200 μg	010-21861	Keep at -20°C.			
			1 mg	014-21864				
			5 mg	010-21866				
Anti 6x Histidine, Monoclonal Antibody, mouse (9C11)	IgG1 9C11 (both-terminal specific)	WB, IP	200 μg	011-23091				
			1 mg	015-23094				
			5 mg	011-23096				
Anti 6x Histidine, Monoclonal Antibody, Mouse (21-48)	IgG1·κ 21-48 (both-terminal specific)	WB, IP	200 μg	017-23211	Keep at 2-10°C.	for Immunology		
			1 mg	011-23214				
Anti 6x Histidine, Monoclonal Antibody, Mouse (28-75)	IgG3·κ 28-75 (both-terminal specific)	WB, IP	200 μg	014-23221				
			1 mg	018-23224				
Hemagglutinin (HA) tag: YPYDVPDYA								
Anti Hemagglutinin, Monoclonal Antibody, Mouse	IgG1 4B2	WB, IP	200 μg	014-21881	Keep at -20°C.			
			1 mg	018-21884				
			5 mg	014-21886				
c-Myc tag: EQKLISEEDL								
Anti c-Myc, Monoclonal Antibody, Mouse (9E10)	IgG1 9E10	WB, IP	200 μg	017-21871	Keep at -20°C.			
			1 mg	011-21874				
			5 mg	017-21876				
GST tag: Glutathione S-transferase								
Anti Glutathione S-transferase, Monoclonal Antibody, Mouse (5A7)	IgG2b 5A7	WB, IP	200 μg	013-21851	Keep at -20°C.			
			1 mg	017-21854				
			5 mg	013-21856				
MBP tag: Maltose Binding Protein *3								
Anti MBP, Monoclonal Antibody, Rat (TMab-2)	IgG2b TMab-2	ELAISA, WB	200 μg	016-24141	Keep at -20°C.			
V5 tag: GKPIPPLLGLDST								
Anti V5 tag, Monoclonal Antibody, Mouse (6F5)	IgG2a 6F5	WB, IP	200 μg	011-23591	Keep at -20°C.			
			1 mg	015-23594				
			5 mg	011-23596				

*1 : Please see the page 12 for the application.

*2, *3 : Please see the page 13 for each application.

(2) Labeled Tag Antibodies

Product Name	Subclass Clone No.	Application	Pkg. Size	Wako Cat. No.	Storage	Grade		
DYK tag: DYKDDDDK								
Anti DYKDDDDK tag, Monoclonal Antibody (1E6), Peroxidase Conjugated	IgG2b 1E6	WB	200 µL	015-22391	Keep at -20°C.	for Immunochemistry		
			1 mL	019-22394				
His tag: HHHHHH (6 x Histidine)								
Anti 6xHistidine, Monoclonal Antibody (9F2), Peroxidase Conjugated	IgG1 9F2 (C-terminal specific)	WB	100 µL	013-23171				
			500 µL	017-23174				
Anti 6xHistidine, Monoclonal Antibody (9C11), Peroxidase Conjugated	IgG1 9C11 (both-terminal specific)	WB	100 µL	010-23181				
			500 µL	014-23184				
HA tag: YPYDVPDYA								
Anti Hemagglutinin, Monoclonal Antibody (4B2), Peroxidase Conjugated	IgG1 4B2	WB	100 µL	011-21911				
			500 µL	015-21914				
c-Myc tag: EQKLISEEDL								
Anti c-Myc, Monoclonal Antibody (9E10), Peroxidase Conjugated	IgG2b 9E10	WB	100 µL	014-21901				
			500 µL	018-21904				
GST tag: Glutathione S-transferase								
Anti Glutathione S-transferase, Monoclonal Antibody (5A7), Peroxidase Conjugated	IgG2b 5A7	WB	100 µL	011-21891				
			500 µL	015-21894				
V5 tag: GKPIPPLLGLDST								
Anti V5 tag, Monoclonal Antibody (6F5), Peroxidase Conjugated	IgG2a 6F5	WB, IP	100 µL	019-24371				

(3) Purified Beads

Product Name	Subclass Clone No.	Pkg. Size	Wako Cat. No.	Storage	Grade	
DYK tag: DYKDDDDK						
Anti DYKDDDDK tag Antibody Beads	IgG2b 1E6	2 mL (net 1 mL)	012-22781	Keep at -20°C.	for Immunochemistry	
		10 mL (net 5 mL)	018-22783			
		50 mL (net 25 mL)	016-22784			
His tag: HHHHHH (6x Histidine)						
Anti 6xHistidine Antibody Beads	IgG3·κ 28-75	2 mL (net 1 mL)	019-23391	Keep at 2-10°C.		
		10 mL (net 5 mL)	015-23393			
HA tag: YPYDVPDYA						
Anti HA Antibody Beads	IgG1 4B2	2 mL (net 1 mL)	014-23081	Keep at -20°C.		
		10 mL (net 5 mL)	010-23083			
c-Myc tag: EQKLISEEDL						
Anti c-Myc Antibody Beads	IgG1 9E10	2 mL (net 1 mL)	017-23071			
		10 mL (net 5 mL)	013-23073			
V5 tag: GKPIPPLLGLDST						
Anti V5 tag Antibody Beads	IgG2b 6F5	1 mL	016-24381			
		5 mL	012-24383			

(4) Tag Peptide

Product Name	Pkg. Size	Wako Cat. No.	Note	Grade	Storage		
DYK tag: DYKDDDDK							
DYKDDDDK Peptide	5 mg	044-30951	Lyophilized; Assay (HPLC): 95+ %	for Genetic Research	Keep at -20°C.		
	25 mg	040-30953					
His tag: HHHHHH (6× Histidine)							
6× Histidine Peptide	5 mg	087-09251	Lyophilized; Assay (HPLC): 95+ %				
	25 mg	083-09253					
HA tag: YPYDVPDYA							
HA Peptide	5 mg	088-09161	Lyophilized; Assay (HPLC): 95+ %				
	25 mg	084-09163					
c-Myc tag: EQKLISEEDL							
c-Myc Peptide	5 mg	132-16361	Lyophilized; Assay (HPLC): 95+ %				
	25 mg	138-16363					
Multitope protein							
Multitope, Denatured, recombinant, Solution *4	500 µL	139-16371	10ng/µL	for Immuno- chemistry			
	2.5 mL	133-16374					

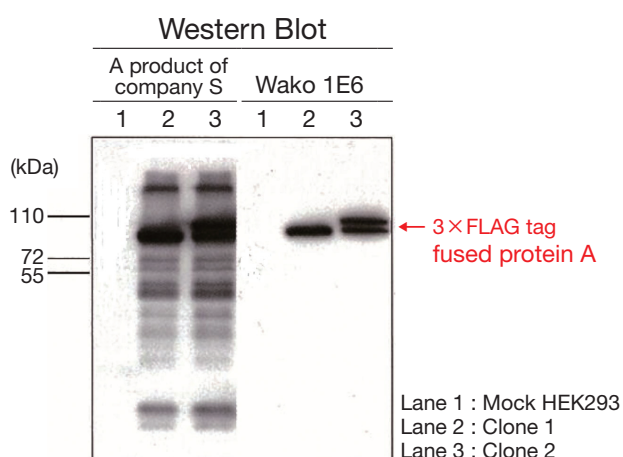
* 4 : Please see the page 13 for the application.

(5) DYKDDDDK-BAP recombinant, Solution

Product Name	Pkg. Size	Wako Cat. No.	Note	Grade	Storage
Amino-terminal DYKDDDDK-BAP, recombinant, Solution	200 µg	016-24401	Assay: 90+ % (SDS-PAGE) Protein concentration: 0.35 mg/mL	for Genetic Research	Keep at -20°C.
Carboxy-terminal DYKDDDDK-BAP, recombinant, Solution	200 µg	036-22781			
Amino-terminal Met-DYKDDDDK-BAP, recombinant, Solution	200 µg	013-24411			

(6) Applications

* 1 (p. 10) *Anti DYKDDDDK tag, Monoclonal Antibody (clone No. 1E6)*



The expression plasmid containing the 3×FLAG tag fused protein A was transfected into the HEK293 cell line and after 24 hour-culture, clones were randomly selected. The selected clone cells were lysed in RIPA Buffer and the Western Blot analysis was performed with the obtained cell lysate.

Wako (clone No. 1E6) (Wako Cat. No. 018-22381) antibody or the antibody produced by company S was used for the Western Blot analysis as a primary antibody.

It was cleared that Wako (clone No. 1E6) antibody could detect the DYKDDDDK sequence more specifically than the antibody by company S.

Data provided by;
Dr. Shuichi Kusano, Chronic Viral Diseases Division of Persistent and
Oncogenic Viruses, Center for Chronic Viral Diseases, Kagoshima University
Graduate School of Medical and Dental Sciences

* 2 (p. 10) *Anti 6xHistidine tag, Monoclonal Antibodies*

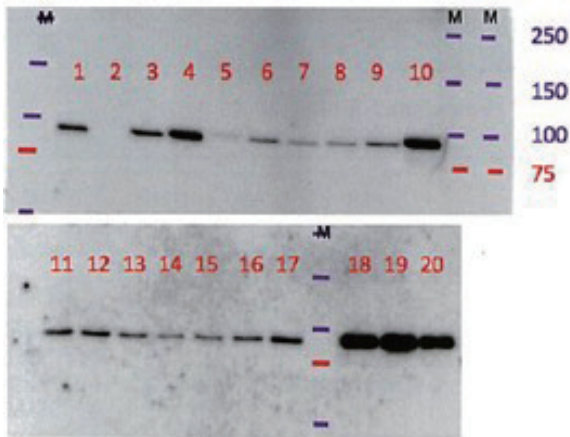


Clone No.	Detectable terminus	Western blot		Immunoprecipitation		ELISA	Wako Cat. No.*
		N terminus	C terminus	N terminus	C terminus		
9F2	C terminus	ND	+++++	ND	++	—	010-21861, etc.
9C11	N/C terminus	+++++	++++	+++++	++	○	011-23091, etc.
21-48	N/C terminus	+++	++++	+++	+++	○	017-23211, etc.
28-75	N/C terminus	++	++	+++++	+++++	○	014-23221, etc.
9F2	C terminus	ND	+++++	—	—	—	013-23171, etc.
9C11	N/C terminus	+++++	++++	—	—	◎	010-23181, etc.

ND : not detection

(* : See the page 10 for details.)

* 3 (p. 10) *Anti MBP, Monoclonal Antibody*



An example of screening with Anti MBP, Monoclonal Antibody (clone No. T Mab-1) (Wako Cat. No. 016-24141)

A target gene incorporated in a vector is transformed into *E.coli*.

↓ Select 20 colonies

↓ Prepare the cell lysate in 1% Triton X-100/PBS

↓ SDS-PAGE (10 μg/well) (5-20% gel, Wako Cat. No.197-15011)

↓ Western Blot [primary antibody: Anti MBP, Monoclonal Antibody]

Detection: ImmunoStar LD (Wako Cat. No.292-69903)

* 4 (p. 12) *Multitope, Denatured, recombinant, solution*

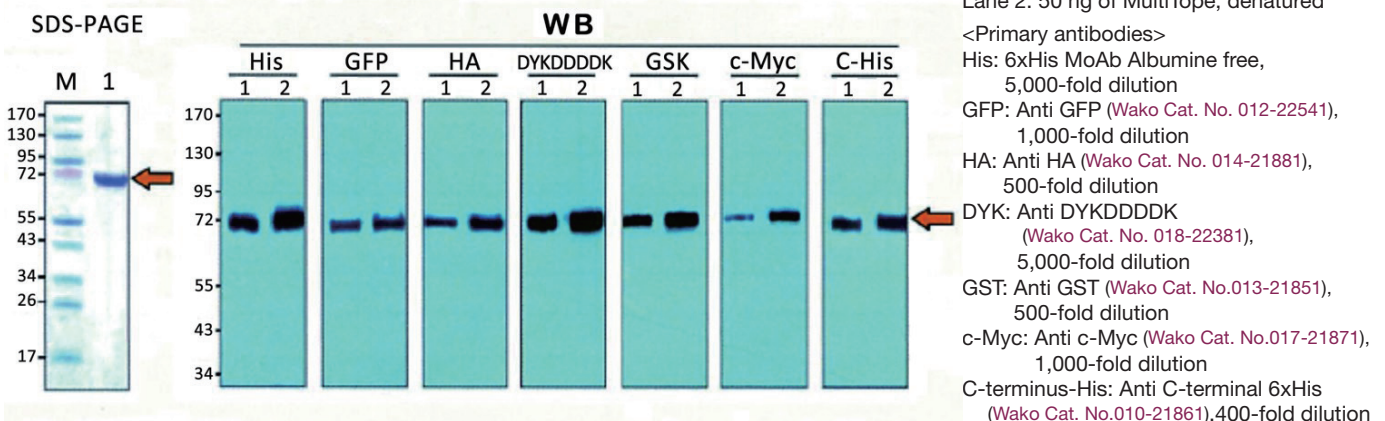
A recombinant protein containing 4 species of tag peptides and 3 species of tag proteins

As it is in a denatured state, it can be directly used for a SDS-PAGE and available for a Western Blot analysis as a positive control of an epitope tag.



TRX: Thioredoxin
 6xHis: internal & C-terminal 6xHistidine
 GFP: Green Fluorescent Protein
 HA: Hemagglutinin: YPYDVPDYA
 DYK: DYKDDDDK
 GST: Glutathione S-transferase
 c-Myc: EQKLISEEDL

Date: Detection of the Multitope by various kinds of primary antibodies (Western Blot)



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

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