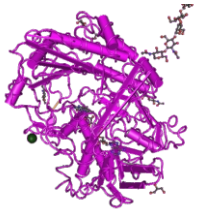
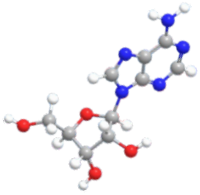
Raw materials for diagnostics

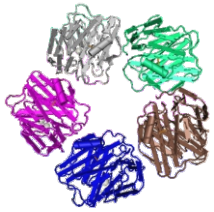
SHANGHAI DIAZYME



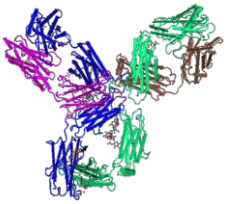
Enzymes



Biochemicals



Antigens



Antibodies

SHANGHAI DIAZYME

Shanghai Diazyme Co.,Ltd. is a biotechnology company specializing in research, development and production of clinical diagnostic enzymes. Founded in 2005, Shanghai Diazyme has built up a strong research and production team, and established a modern facility equipped with state-of-the-art equipments and instrumentations needed for enzyme cloning, expression fermentation purification and lyophilization. Shanghai Diazyme has developed nearly 70 enzymes used in clinical diagnostics, including enzymes for homocysteine test, creatinine test and free fatty acid test.

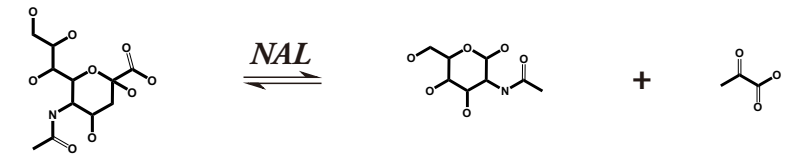
Our mission is to improve the quality of healthcare by providing our innovative enzyme products in clinical diagnostics.

Enzymes	ABBR.	CAT NO.	ORIGIN	PAGE
Glutamate Dehydrogenase (NADP)	GLDH	SDZ500142	Microorganism	66
Glutamate Oxidase	GLOD	SDZ500680	Microorganism	68
Glutaminase	GLTA	SDZ500691	Microorganism	70
Glycerol Dehydrogenase	GYD	SDZ500670	Microorganism	72
Glycerol Kinase	GK	SDZ500190 SDZ500191	Microorganism	74
Glycerophosphate Oxidase	GPO	SDZ500202	Microorganism	76
Hexokinase	HK	SDZ500330	Microorganism	78
D-3-Hydroxybutyrate Dehydrogenase	HBDH	SDZ500311	Microorganism	80
3 α -Hydroxysteroid Dehydrogenase	HSD	SDZ500171	Microorganism	82
D-Lactate Dehydrogenase	D-LDH	SDZ500161	Microorganism	84
L-Lactate Dehydrogenase	L-LDH	SDZ500162	Microorganism	86
Lactate Oxidase	LCO	SDZ500570	Microorganism	88
Leucine Dehydrogenase	LeuDH	SDZ500280	Microorganism	90
Malate Dehydrogenase	MDH	SDZ500150	Microorganism	92
Neuraminidase	NRH	SDZ500380	Microorganism	94
Oxalate Oxidase	OXO	SDZ500710	Microorganism	96
Peroxidase	POD	SDZ500510 SDZ500511	Horseradish	98
Peroxidase (recombinant)	rPOD	SDZ500512	Microorganism	100
Phosphoenolpyruvate Carboxylase	PEPC	SDZ500080	Microorganism	102
Purine Nucleoside Phosphorylase	PNP	SDZ500040	Microorganism	104
Pyranose Oxidase	PROD	SDZ500431	Microorganism	106
Pyruvate Kinase	PK	SDZ500250	Microorganism	108
Pyruvate Oxidase	PYOD	SDZ500470	Microorganism	110
Sarcosine Oxidase	SOX	SDZ500350	Microorganism	112
Urease	URH	SDZ500241	Jack bean	114
Uricase	UAO	SDZ500070	Microorganism	116
Uricase	UAO	SDZ500071	Microorganism	118
Xanthine Oxidase	XOD	SDZ500110	Arthrobacter sp.	120

Enzymes for Diagnostics

N-Acetylneuraminic Acid Aldolase

Reaction



N-acetylneuraminate *N-acetyl-D-mannosamine* *Pyruvate*

Product description

Catalog No.:	SDZ500371
Appearance:	Yellowish amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 4.1.3.3
CAS Number:	9027-60-5
Storage temperature:	-20℃
Specific activity:	⩾ 45U/mg protein
Unit definition:	One unit will convert one micromole of N-acetylneuraminate to N-acetyl-D-mannosamine per min at pH 7.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least three years	
Molecular weight:	33 kDa (SDS-PAGE)	
Isoelectric point:	6.4	
Michaelis constant:	2.5×10^{-3} M (N-Acetylneuraminate)	
Optimum pH:	6.0~8.0	{Fig. 1}
Optimum temperature:	50℃	{Fig. 3}
pH Stability:	4.5~10.0 (25℃, 25hr)	{Fig. 2}
Thermal stability:	< 65℃ (pH 7.5, 10min)	{Fig. 4}
Inhibitors:	Co^{2+},Cu^{2+},Zn^{2+},NEM,Proclin	
Effect of various chemicals:		{Table 1}

Table 1.

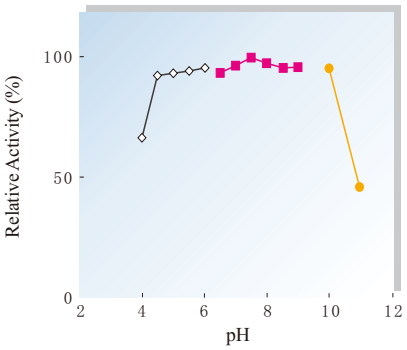
Effect of Various Chemicals on NAL

[The enzyme dissolved in 50mM K-phosphate buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	99%
$CoCl_2$	2.0	46%
$CuSO_4$	2.0	3%
$FeCl_3$	2.0	97%
$MgSO_4$	2.0	97%
$MnSO_4$	2.0	98%
$NiCl_2$	2.0	91%
$ZnSO_4$	2.0	41%
BME	2.0	94%

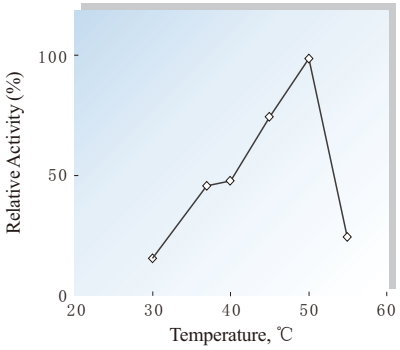
Chemical	Concn. (mM)	Residual activity
NEM	2.0	20%
EDTA	5.0	102%
NaN_3	20.0	101%
Proclin	0.045%	1%
Boric Acid-Borax	2.0	94%
Na-cholate	0.10%	99%
SDS	0. 05%	100%
Triton X-100	0.10%	95%
Tween 20	0.10%	96%

Fig. 1 pH Activity



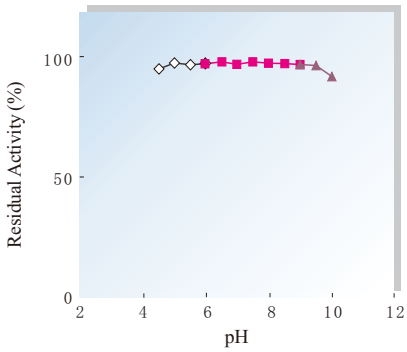
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
● : 50mM Glycine-NaOH buffer

Fig. 3 Temperature activity



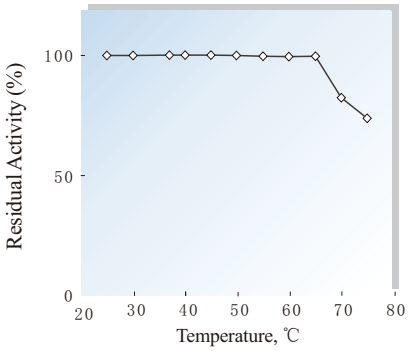
Buffer: 50mM K-phosphate buffer , pH 7.5

Fig. 2 pH Stability



Treatment : 25℃, 25hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM borate buffer

Fig. 4 Thermal stability

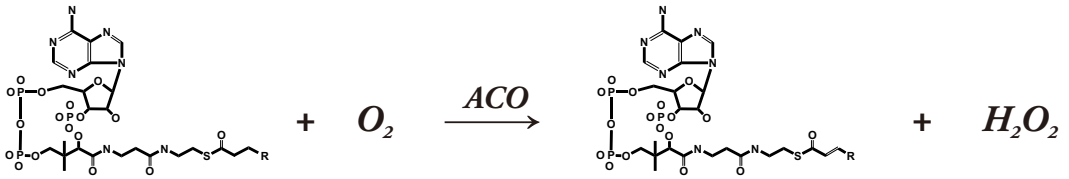


Treatment: 50mM K-phosphate buffer, pH 7.5, 10min

Acyl-CoA Oxidase

Acyl-CoA:oxygen-2-oxidoreductase

Reaction



Acyl-CoA *trans-2,3-Dehydroacyl-CoA*

Product description

Catalog No.:	SDZ500300
Appearance:	Yellow amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.3.3.6
CAS Number:	61116-22-1
Storage temperature:	-20℃
Specific activity:	⩾ 30U/mg protein
Unit definition:	One unit will convert one micromole of acyl-CoA to trans-2, 3-dehydroacyl -CoA per min at pH 7.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	78 kDa (SDS-PAGE)	
Isoelectric point:	6.0	
Michaelis constant:	1. 0×10^{-5}M (Palmitoyl-CoA)	
Optimum pH:	8.0~9.0	{Fig. 1}
Optimum temperature:	37~40℃	{Fig. 3}
pH Stability:	6.0~8.5 (25℃, 15hr)	{Fig. 2}
Thermal stability:	< 45℃ (pH 7.5, 15min)	{Fig. 4}
Inhibitors:	Co^{2+} ,Cu^{2+} ,Ni^{2+},Zn^{2+},NEM,Proclin , SDS	
Effect of various chemicals:		{Table 1}

Table 1.

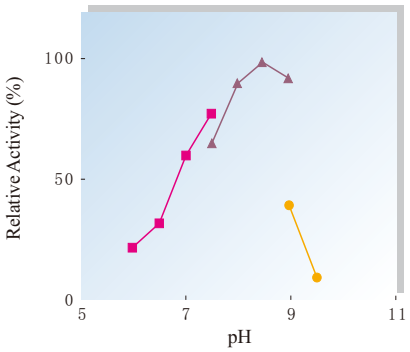
Effect of Various Chemicals on ACO

[The enzyme dissolved in 50mM MOPS buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	98%
$CoCl_2$	2.0	60%
$CuSO_4$	2.0	5%
$FeCl_3$	2.0	86%
$MgSO_4$	2.0	103%
$MnSO_4$	2.0	88%
$NiCl_2$	2.0	10%
$ZnSO_4$	2.0	5%
$K_4Fe(CN)_6$	2.0	100%

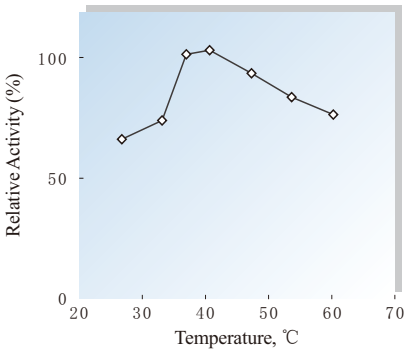
Chemical	Concn. (mM)	Residual activity
BME	2.0	89%
NEM	2.0	72%
EDTA	5.0	105%
NaN_3	20.0	100%
Proclin	0.045%	61%
Na-cholate	0.10%	91%
SDS	0. 05%	34%
Triton X-100	0.10%	96%
Tween 20	0.10%	110%
FAD	1.0	123%

Fig. 1 pH Activity



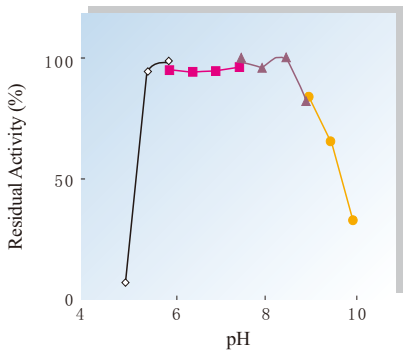
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM Borate buffer

Fig. 3 Temperature activity



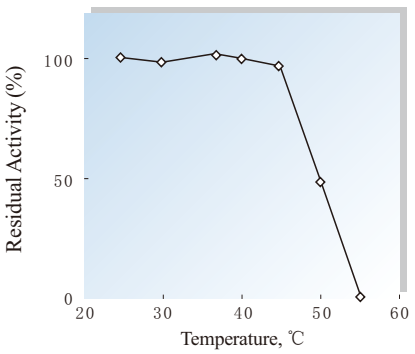
Buffer: 200mM Tris-HCl buffer, pH 7.5

Fig. 2 pH Stability



Treatment : 25℃,15hr
◇ : 100mM acetate buffer, 1mM FAD, 0.1% BSA
■ : 100mM phosphate buffer, 1mM FAD, 0.1% BSA
▲ : 100mM Tris-HCl buffer, 1mM FAD, 0.1% BSA
● : 100mM Borate buffer, 1mM FAD, 0.1% BSA

Fig. 4 Thermal stability

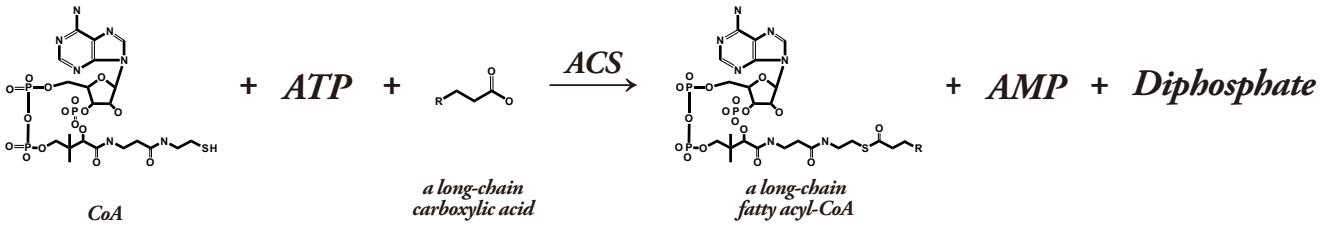


Treatment: 100mM phosphate buffer, 0.1% BSA,1mM FAD pH 7.5, 15min

Acyl-CoA Synthetase

Acid:CoA ligase (AMP forming)

Reaction



Product description

Catalog No.:	SDZ500321
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 6.2.1.3
CAS Number:	9013-18-7
Storage temperature:	-20℃
Specific activity:	≥ 5U/mg protein
Unit definition:	One unit will convert one micromole of potassium oleate to acyl-CoA per min at pH 7.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	58 kDa (SDS-PAGE)	
Isoelectric point:	5.2	
Michaelis constant:	3.0×10^{-4}M (Oleic acid)	
Optimum pH:	7.5~8.0	{Fig. 1}
Optimum temperature:	50℃~65℃	{Fig. 3}
pH Stability:	4.0~8.0 (25℃, 18hr)	{Fig. 2}
Thermal stability:	< 55℃ (pH 7.5, 10min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{3+}	
Effect of various chemicals:		{Table 1}

Table 1.

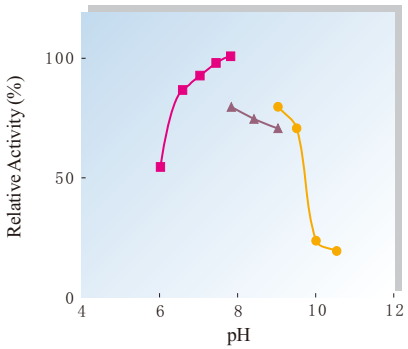
Effect of Various Chemicals on ACS

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (5U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	93%
$CoCl_2$	2.0	95%
$CuSO_4$	2.0	0%
$FeCl_3$	2.0	60%
$MgSO_4$	2.0	87%
$MnSO_4$	2.0	93%
$NiCl_2$	2.0	89%
$ZnSO_4$	2.0	92%
$K_4Fe(CN)_6$	2.0	100%

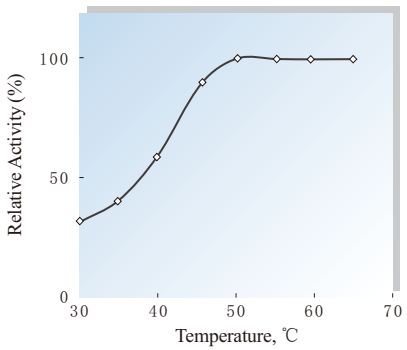
Chemical	Concn. (mM)	Residual activity
BME	2.0	97%
NEM	2.0	80%
EDTA	5.0	92%
NaN_3	20.0	94%
Proclin	0.045%	83%
Na-cholate	0.10%	94%
SDS	0.05%	100%
Triton X-100	0.10%	94%
Tween 20	0.10%	92%
ATP	2.0	88%

Fig. 1 pH Activity



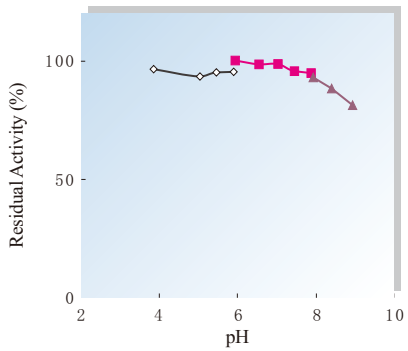
■ : 40mM phosphate buffer
▲ : 40mM Tris-HCl buffer
● : 40mM Glycine-NaOH buffer

Fig. 3 Temperature activity



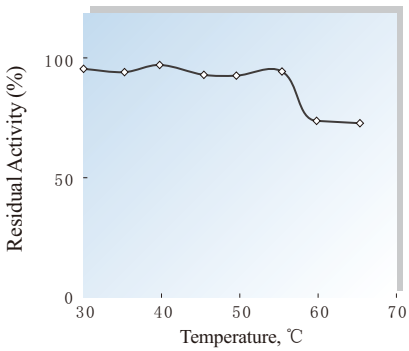
Buffer: 50mM K-phosphate buffer , pH 7.5

Fig. 2 pH Stability



Treatment : 25℃,18hr
◇ : 50mM acetate buffe
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer

Fig. 4 Thermal stability

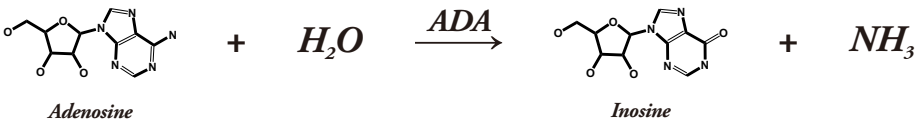


Treatment: 10mM K-phosphate buffer, pH 7.5, 10min

Adenosine Deaminase

Adenosine aminohydrolase

Reaction



Adenosine *Inosine*

Product description

Catalog No.:	SDZ500037
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.5.4.4
CAS Number:	9026-93-1
Storage temperature:	-20℃
Specific activity:	≥ 150U/mg protein
Unit definition:	One unit will deaminate one micromole of adenosine to inosine per min at pH 7.4 at 25℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	42 kDa (SDS-PAGE)	
Isoelectric point:	5.8	
Michaelis constant:	8.0×10^{-5}M (Adenosine)	
Optimum pH:	7.0-7.5	{Fig. 1}
Optimum temperature:	60℃	{Fig. 3}
pH Stability:	7.5 (25℃, 16hr)	{Fig. 2}
Thermal stability:	<60℃ (pH 7.4, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{3+},Ni^{2+},SDS	
Effect of various chemicals:		{Table 1}

Table 1.

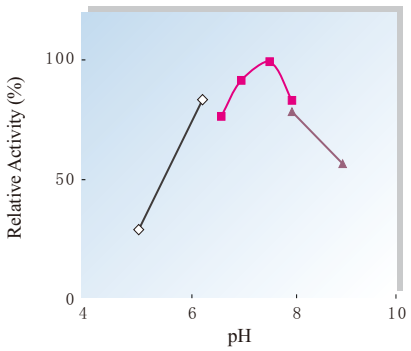
Effect of Various Chemicals on ADA

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	91%
$CoCl_2$	2.0	88%
$CuSO_4$	2.0	3%
$FeCl_3$	2.0	29%
$MgSO_4$	2.0	94%
$MnSO_4$	2.0	94%
$NiCl_2$	2.0	63%
$ZnSO_4$	2.0	83%

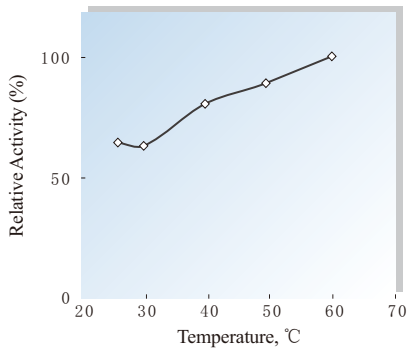
Chemical	Concn. (mM)	Residual activity
BME	2.0	88%
NEM	2.0	100%
EDTA	5.0	100%
NaN_3	20.0	98%
Proclin	0.045%	99%
Na-cholate	0.10%	114%
SDS	0.05%	5%
Triton X-100	0.10%	108%
Tween 20	0.10%	114%

Fig. 1 pH Activity



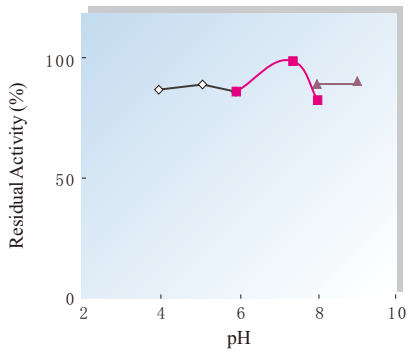
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer

Fig. 3 Temperature activity



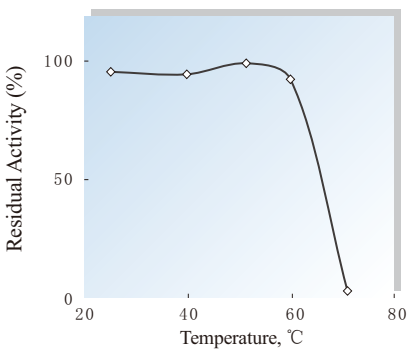
Buffer: 50mM Na-phosphate buffer , pH 7.4

Fig. 2 pH Stability



Treatment: 25℃, 16hr
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer

Fig. 4 Thermal stability



Treatment: 50mM Na-phosphate buffer, pH 7.4, 30min

Alcohol Dehydrogenase

Reaction

$$CH_3CH_2OH + NAD^+ \overset{ADH}{\rightleftharpoons} CH_3CHO + NADH + H^+$$

Product description

Catalog No.:	SDZ500610
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.1
CAS Number:	9031-72-5
Storage temperature:	-20℃
Specific activity:	≥ 100U/mg protein
Unit definition:	One unit will convert one micromole of ethanol to acetaldehyde per min at pH8.8 at 25℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	40 kDa (SDS-PAGE)	
Isoelectric point:	6.5	
Michaelis constant:	8.0×10^{-4} M (Ethanol)	
Optimum pH:	9.5~10.5	{Fig. 1}
Optimum temperature:	50℃~60℃	{Fig. 3}
pH Stability:	6.0~9.5 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 55℃ (pH 7.5, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Ni^{2+},Zn^{2+},NEM,Proclin,Na-cholate,SDS,Triton X-100,Tween20	
Effect of various chemicals:		{Table 1}

Table 1.

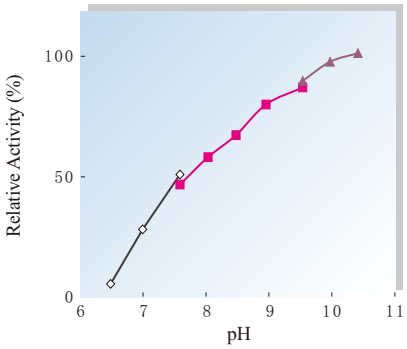
Effect of Various Chemicals on ADH

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	93%
$CoCl_2$	2.0	100%
$CuSO_4$	2.0	26%
$FeCl_3$	2.0	100%
$MgSO_4$	2.0	100%
$MnSO_4$	2.0	95%
$NiCl_2$	2.0	76%
$ZnSO_4$	2.0	40%
$K_4Fe(CN)_6$	2.0	86%

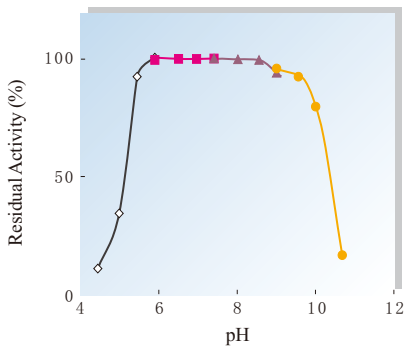
Chemical	Concn. (mM)	Residual activity
BME	2.0	100%
NEM	2.0	25%
EDTA	5.0	100%
NaN_3	20.0	100%
Proclin	0.045%	8%
Na-cholate	0.10%	24%
SDS	0.05%	24%
Triton X-100	0.10%	61%
Tween 20	0.10%	36%

Fig. 1 pH Activity



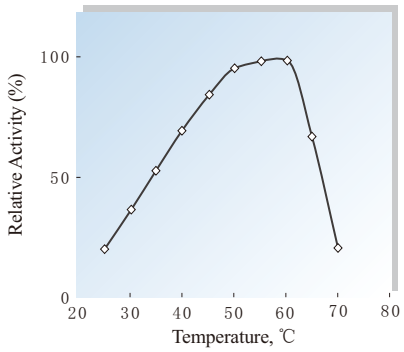
◇ : 50mM phosphate buffer
■ : 50mM Tris-HCl buffer
▲ : 50mM glycine-NaOH buffer

Fig. 2 pH Stability



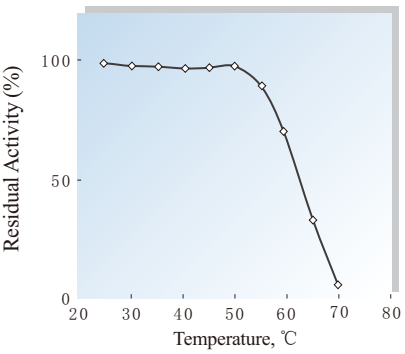
Treatment : 25℃,20hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 10mM phosphatebuffer , pH7.5

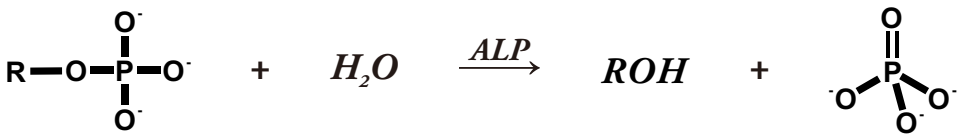
Fig. 4 Thermal stability



Treatment: 10mM phosphatebuffer , pH7.5, 30min

Alkaline Phosphatase

Reaction



Phosphate monoester *Phosphate*

Product description

Catalog No.:	SDZ500540
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.1.3.1
CAS Number:	9001-78-9
Storage temperature:	-20℃
Specific activity:	≥ 500U/mg protein
Unit definition:	One unit will convert one micromole of p-nitrophenol phosphate to p-nitrophenol per min at pH 10.25 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	46 kDa (SDS-PAGE)	
Isoelectric point:	5.4	
Michaelis constant:	7.5×10^{-4} M (p-Nitrophenylphosphate disodium salt)	
Optimum pH:	9.5-10.5	{Fig. 1}
Optimum temperature:	37℃-65℃	{Fig. 3}
pH Stability:	6.0~9.0 (25℃, 22hr)	{Fig. 2}
Thermal stability:	< 45℃ (pH 7.5, 30min)	{Fig. 4}
Inhibitors:	Ca^{2+},Co^{2+},Fe^{2+},Ni^{2+},BME,EDTA,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

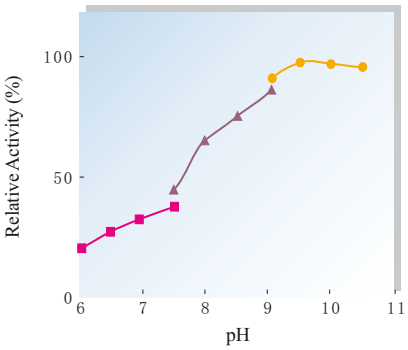
Effect of Various Chemicals on ALP

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	75%
$CoCl_2$	2.0	12%
$CuSO_4$	2.0	10%
$FeCl_3$	2.0	12%
$MgSO_4$	2.0	98%
$MnSO_4$	2.0	87%
$NiCl_2$	2.0	49%
$K_4Fe(CN)_6$	2.0	102%

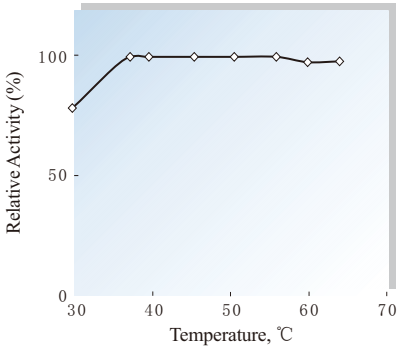
Chemical	Concn. (mM)	Residual activity
BME	2.0	0%
NEM	2.0	109%
EDTA	5.0	67%
NaN_3	20.0	96%
Proclin	0.045%	81%
Na-cholate	0.10%	142%
SDS	0.05%	10%
Triton X-100	0.10%	284%
Tween 20	0.10%	183%

Fig. 1 pH Activity



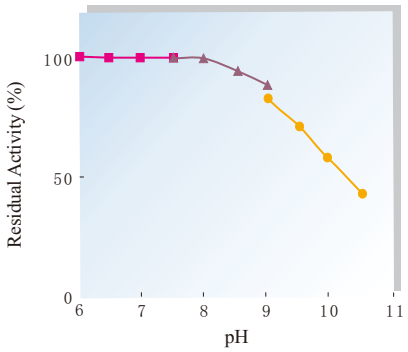
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM Diethanolamine buffer

Fig. 3 Temperature activity



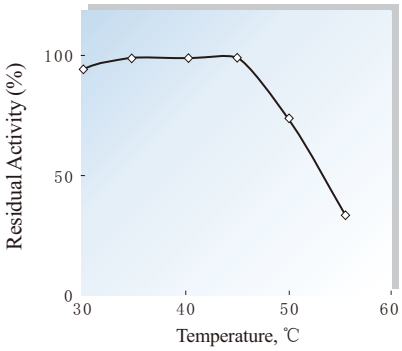
Buffer: 10mM phosphate buffer , pH 7.5

Fig. 2 pH Stability



Treatment : 25℃, 22hr
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM Diethanolamine buffer

Fig. 4 Thermal stability



Treatment: 10mM phosphate buffer, pH 7.5, 30min

Ascorbate Oxidase

L-Ascorbate:oxygen oxidoreductase

Reaction

L-Ascorbate acid *Dehydroascorbic acid*

Product description

Catalog No.:	SDZ500221
Appearance:	Blue amorphous powder
Source:	Plant
Enzyme Commission Number:	EC 1.10.3.3
CAS Number:	9029-44-1
Storage temperature:	-20℃
activity:	⩾ 100U/mg solid
Unit definition:	One unit causes the decrease of one micromole of ascorbic acid per min at pH 5.6 at 30℃.

Properties

Stability:	Stable at -20℃ for at least three years	
Molecular weight:	67kDa (SDS-PAGE)	
Michaelis constant:	3.6×10^{-4}M(L-Ascorbate acid)	
Optimum pH:	6.0~6.5	{Fig. 1}
Optimum temperature:	45℃~50℃	{Fig. 3}
pH Stability:	4.5~9.5 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 7.0, 30min)	{Fig. 4}
Inhibitors:	Fe^{3+},Ni^{2+},Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

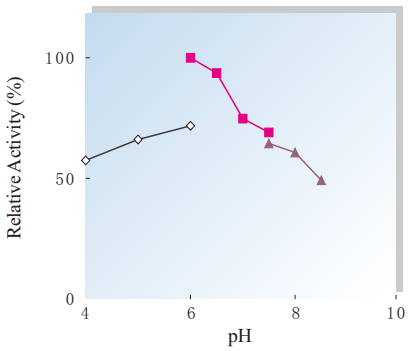
Effect of Various Chemicals on ASO

[The enzyme dissolved in 50mM PIPES buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	100%
$CoCl_2$	2.0	102%
$CuSO_4$	2.0	160%
$FeCl_3$	2.0	76%
$MgSO_4$	2.0	104%
$MnSO_4$	2.0	100%
$NiCl_2$	2.0	70%
$ZnSO_4$	2.0	102%
$K_4Fe(CN)_6$	2.0	89%

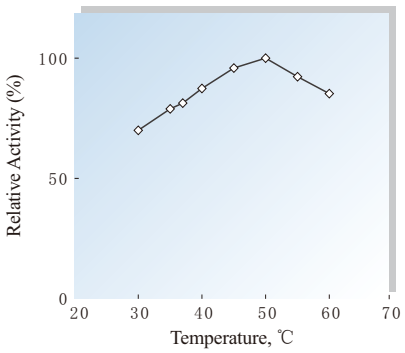
Chemical	Concn. (mM)	Residual activity
BME	2.0	80%
NEM	2.0	93%
EDTA	5.0	102%
NaN_3	20.0	97%
Proclin	0.045%	73%
Na-cholate	0.10%	111%
SDS	0.05%	8%
Triton X-100	0.10%	108%
Tween 20	0.10%	112%

Fig. 1 pH Activity



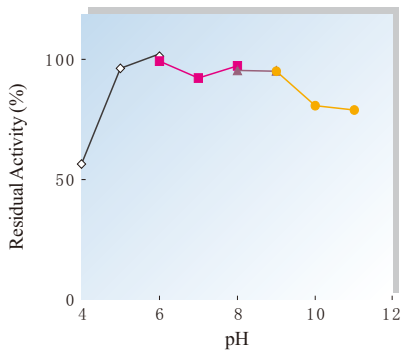
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer

Fig. 3 Temperature activity



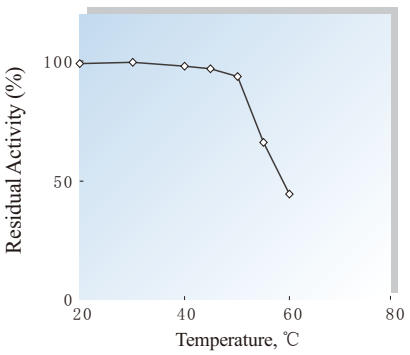
Buffer: 100mM K-phosphate buffer , pH 5.6

Fig. 2 pH Stability



Treatment : 25℃,20hr
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM glycine-NaOH buffer

Fig. 4 Thermal stability

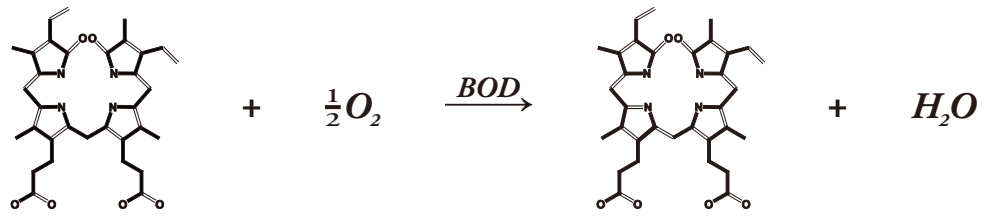


Treatment: 10mM K-phosphate buffer with 0.2%BSA, pH 7.0,30min

Bilirubin Oxidase

Bilirubin:oxygen Oxidoreductase

Reaction



Bilirubin *Biliverdin*

Product description

Catalog No.:	SDZ500290
Appearance:	Blue amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.3.3.5
CAS Number:	80619-01-8
Storage temperature:	-20℃
Specific activity:	⩾ 50U/mg protein
Unit definition:	One unit will convert one micromole of bilirubin to biliverdin per min at pH 8.0 at 25℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	67 kDa (SDS-PAGE)	
Isoelectric point:	5.2	
Michaelis constant:	1.2×10^{-4}M (Bilirubin)	
Optimum pH:	7.5	{Fig. 1}
Optimum temperature:	25℃~60℃	{Fig. 3}
pH Stability:	7.5~11.0 (25℃, 18hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 7.0, 30min)	{Fig. 4}
Inhibitors:	BME,NaN_3	
Effect of various chemicals:		{Table 1}

Table 1.

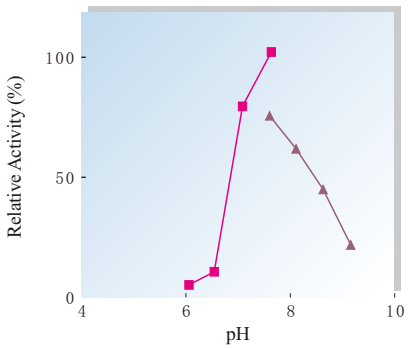
Effect of Various Chemicals on BOD

[The enzyme dissolved in 50mM K-phosphate buffer, pH 7.5 (10U/ml) was incubated with each chemical at 25℃ for 4hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	88%
$CoCl_2$	2.0	88%
$CuSO_4$	2.0	85%
$FeCl_3$	2.0	91%
$MgSO_4$	2.0	106%
$MnSO_4$	2.0	102%
$NiCl_2$	2.0	99%
$ZnSO_4$	2.0	92%

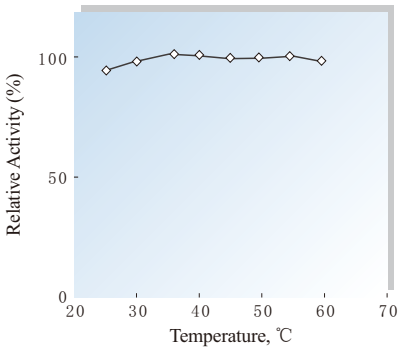
Chemical	Concn. (mM)	Residual activity
BME	2.0	75%
NEM	2.0	99%
EDTA	5.0	87%
NaN_3	20.0	47%
Proclin	0.045%	88%
Na-cholate	0.10%	106%
SDS	0.05%	101%
Triton X-100	0.10%	107%
Tween 20	0.10%	105%

Fig. 1 pH Activity



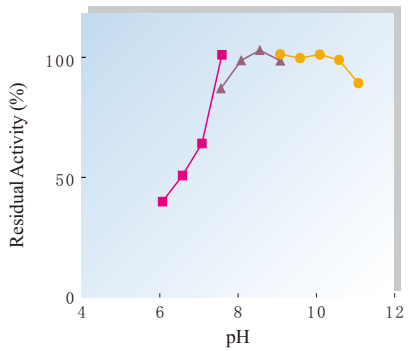
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer

Fig. 3 Temperature activity



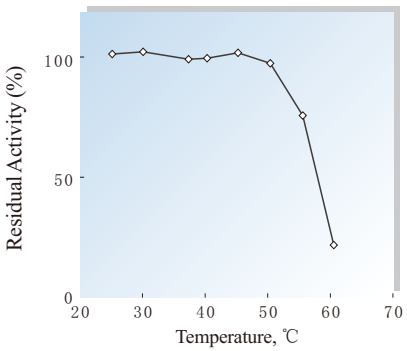
Buffer: 100mM Tris-HCl buffer , pH 8.0

Fig. 2 pH Stability



Treatment : 25℃,18hr
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM Glycine-NaOH buffer

Fig. 4 Thermal stability



Treatment: 50mM K-phosphate buffer, pH 7.0, 30min

Catalase

Reaction

$$2H_2O_2 \xrightarrow{CAT} O_2 + 2H_2O$$

Product description

Catalog No.:	SDZ500531
Appearance:	Olive green powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.11.1.6
CAS Number:	9001-05-2
Storage temperature:	-20℃
Specific activity:	⩾ 25kU/mg protein
Unit definition:	One unit will catalyze one micromole of hydrogen peroxide per min at pH 7.0 at 25℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight	82kDa (SDS-PAGE)	
Optimum pH:	7.0~9.0	{Fig. 1}
Optimum temperature:	30~50℃	{Fig. 3}
pH Stability:	5.0~10. 0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 60℃ (pH 7.0, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Zn^{2+},BME,EDTA,NaN_3	
Effect of various chemicals:		{Table 1}

Table 1.

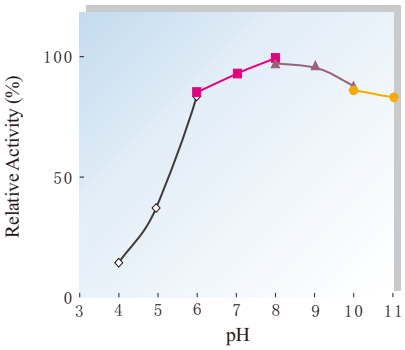
Effect of Various Chemicals on CAT

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 BSA (100U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	100%
$CoCl_2$	2.0	85%
$CuSO_4$	2.0	2%
$FeCl_3$	2.0	88%
$MgSO_4$	2.0	100%
$MnSO_4$	2.0	80%
$NiCl_2$	2.0	96%
$ZnSO_4$	2.0	6%
$K_4Fe(CN)_6$	2.0	83%

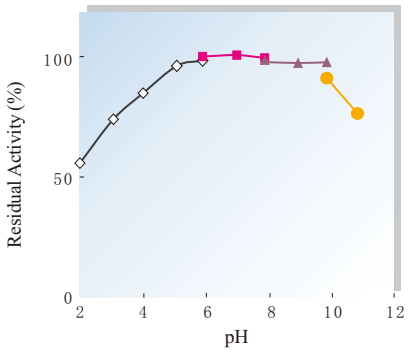
Chemical	Concn. (mM)	Residual activity
BME	2.0	0%
NEM	2.0	87%
EDTA	5.0	50%
NaN_3	20.0	0%
Proclin	0.045%	100%
Brij35	0.10%	100%
Na-cholate	0.10%	99%
SDS	0.05%	100%
Triton X-100	0.10%	97%
Tween 20	0.10%	100%

Fig. 1 pH Activity



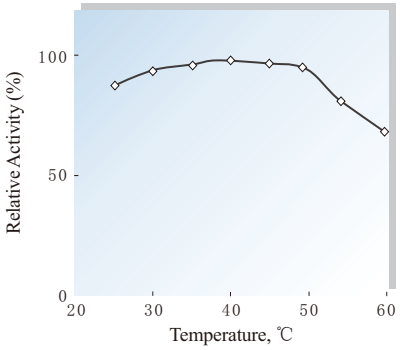
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris buffer
● : 50mM Glycine-NaOHbuffer

Fig. 2 pH Stability



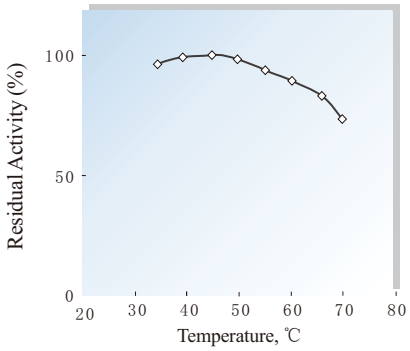
Treatment : 25℃, 20hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris buffer
● : 50mM glycine buffer

Fig. 3 Temperature activity



Buffer: 10mM K-phosphate buffer , pH 7.0

Fig. 4 Thermal stability



Treatment: 10mM K-phosphate buffer, pH 7.0, 30min

Cholesterol Esterase

Steryl-ester acylhydrolase

Reaction

Cholesterol ester *Cholesterol* *Fatty acid*

Product description

Catalog No.:	SDZ500581
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.1.1.13
CAS Number:	9026-00-0
Storage temperature:	-20℃
Specific activity:	≥ 200U/mg protein
Unit definition:	One unit will convert one micromole of cholesterol ester to cholesterol per min at pH 7.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	52kDa (SDS-PAGE)	
Isoelectric point:	5.9	
Michaelis constant:	5.4×10^{-5}M (Cholesterol ester)	
Optimum pH:	6.0	{Fig. 1}
Optimum temperature:	40℃	{Fig. 3}
pH Stability:	6.0~9.0 (25℃, 24hr)	{Fig. 2}
Thermal stability:	< 40℃ (pH 7.0, 15min)	{Fig. 4}
Inhibitors:		
Effect of various chemicals:		{Table 1}

Table 1.

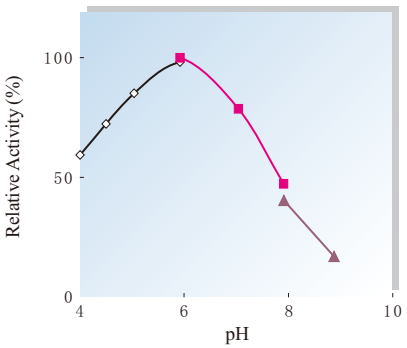
Effect of Various Chemicals on CHE

[The enzyme dissolved in 100mM Tris-HCl buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	89%
$CoCl_2$	2.0	102%
$CuSO_4$	2.0	81%
$FeCl_3$	2.0	99%
$MgSO_4$	2.0	90%
$MnSO_4$	2.0	90%
$NiCl_2$	2.0	95%
$ZnSO_4$	2.0	89%
$K_4Fe(CN)_6$	2.0	100%

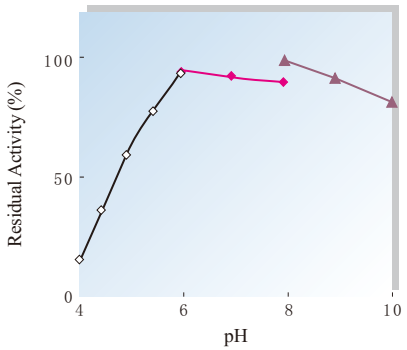
Chemical	Concn. (mM)	Residual activity
BME	2.0	108%
NEM	2.0	94%
EDTA	5.0	97%
NaN_3	20.0	90%
Proclin	0.05%	98%
Boric Acid-Borax	2.0	98%
Na-cholate	0.10%	86%
SDS	0.05%	98%
Triton X-100	0.10%	93%
Tween 20	0.10%	98%

Fig. 1 pH Activity



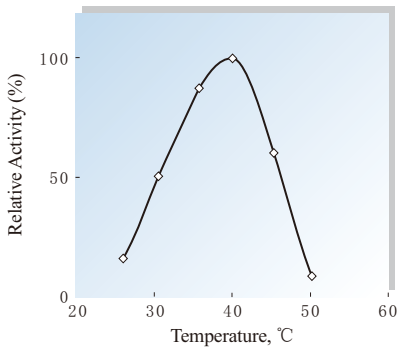
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris buffer

Fig. 2 pH Stability



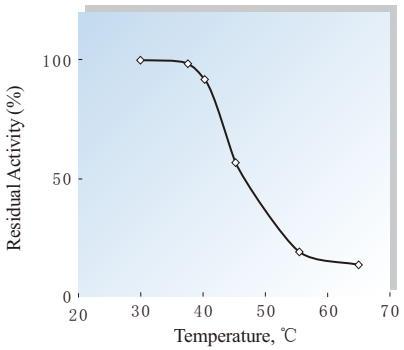
Treatment : 20℃,24hr
◇ : 100mM acetate buffer
◆ : 100mM phosphate buffer
▲ : 100mM Tris buffer

Fig. 3 Temperature activity



Buffer: 100mM K-phosphate buffer , pH 7.0

Fig. 4 Thermal stability

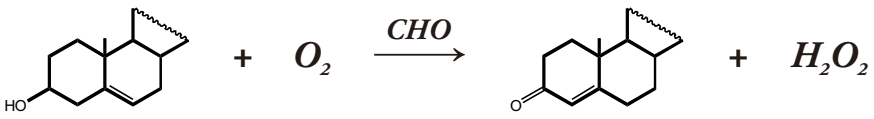


Treatment: 50mM K-phosphate buffer pH 7.0, 15min

Cholesterol Oxidase

Cholesterol:oxygen oxidoreductase

Reaction



Cholesterol *Cholest-4-en-3-one*

Product description

Catalog No.:	SDZ500410
Appearance:	Yellow amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.3.6
CAS Number:	9028-76-6
Storage temperature:	-20℃
Specific activity:	≥ 80U/mg protein
Unit definition:	One unit will oxidate one micromole of cholesterol per min at pH 7.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	55 kDa (SDS-PAGE)	
Isoelectric point:	6.7	
Michaelis constant:	2.1×10^{-5}M (Cholesterol)	
Optimum pH:	7.0~8.0	{Fig. 1}
Optimum temperature:	60℃	{Fig. 3}
pH Stability:	5.0~10.0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 55℃ (pH 7.0, 15min)	{Fig. 4}
Inhibitors:	$K_4Fe(CN)_6$,SDS	
Effect of various chemicals:		{Table 1}

CHO

Table 1.

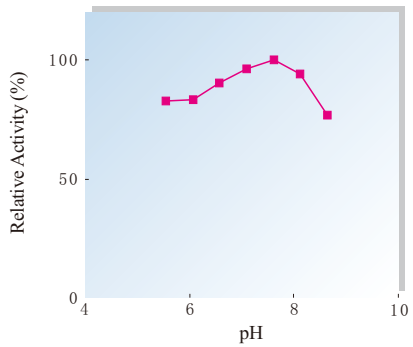
Effect of Various Chemicals on CHO

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (1U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	100%
$CoCl_2$	2.0	89%
$CuSO_4$	2.0	91%
$FeCl_3$	2.0	126%
$MgSO_4$	2.0	92%
$MnSO_4$	2.0	91%
$NiCl_2$	2.0	90%
$ZnSO_4$	2.0	124%
$K_4Fe(CN)_6$	2.0	52%

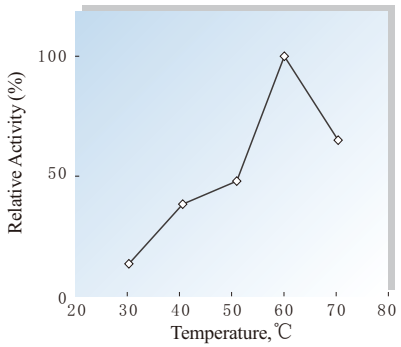
Chemical	Concn. (mM)	Residual activity
BME	2.0	89%
NEM	2.0	105%
EDTA	5.0	96%
NaN_3	20.0	85%
Proclin	0.045%	103%
Boric Acid-Borax	2.0	98%
Na-cholate	0.10%	118%
SDS	0.05%	0%
Triton X-100	0.10%	135%
Tween 20	0.10%	141%

Fig. 1 pH Activity



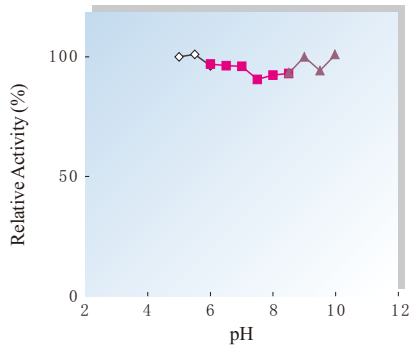
■ : 100mM phosphate buffer, 37℃

Fig. 3 Temperature activity



Buffer: 100mM K-phosphate buffer , pH 7.0

Fig. 2 pH Stability



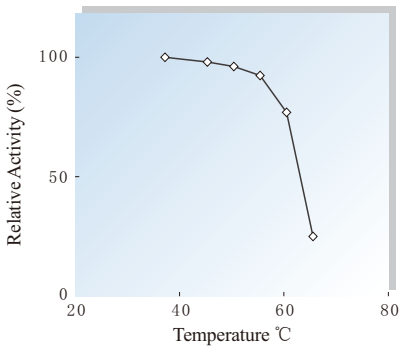
Treatment : 25℃,20hr

◇ : 50mM acetate buffer

■ : 50mM phosphate buffer

▲ : 50mM K_2CO_3-$NaHCO_3$

Fig. 4 Thermal stability

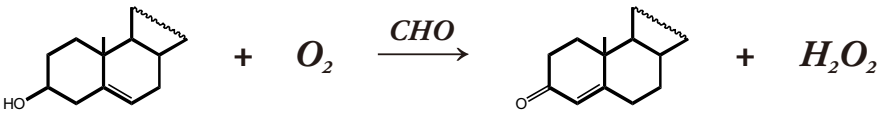


Treatment: 50mM K-phosphate buffer, pH 7.0, 15min

Cholesterol Oxidase

Cholesterol:oxygen oxidoreductase

Reaction



Cholesterol *Cholest-4-en-3-one*

Product description

Catalog No.:	SDZ500412
Appearance:	Yellow amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.3.6
CAS Number:	9028-76-6
Storage temperature:	-20℃
Specific activity:	≥ 40U/mg protein
Unit definition:	One unit will oxidate one micromole of cholesterol per min at pH 7.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	63 kDa (SDS-PAGE)	
Isoelectric point:	6.0	
Michaelis constant:	1. 2×10^{-5}M (Cholesterol)	
Optimum pH:	5.5~7.5	{Fig. 1}
Optimum temperature:	35~60℃	{Fig. 3}
pH Stability:	5.0~10.0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 45℃ (pH 7.0, 30min)	{Fig. 4}
Inhibitors:	Fe^{3+},SDS	
Effect of various chemicals:		{Table 1}

CHO

Table 1.

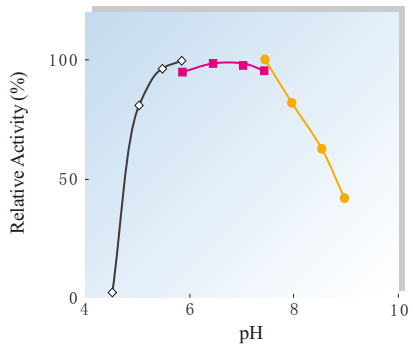
Effect of Various Chemicals on CHO

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (1U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	95%
$CoCl_2$	2.0	95%
$CuSO_4$	2.0	86%
$FeCl_3$	2.0	13%
$MgSO_4$	2.0	105%
$MnSO_4$	2.0	100%
$NiCl_2$	2.0	86%
$ZnSO_4$	2.0	80%
$K_4Fe(CN)_6$	2.0	105%

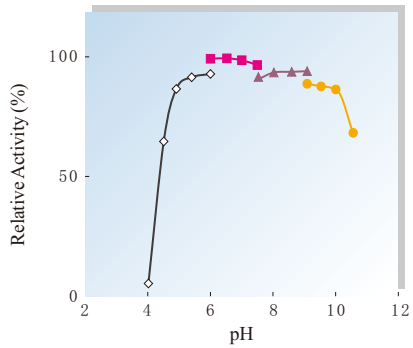
Chemical	Concn. (mM)	Residual activity
BME	2.0	93%
NEM	2.0	95%
EDTA	5.0	105%
NaN_3	20.0	107%
Proclin	0.045%	96%
Boric Acid-Borax	2.0	106%
Na-cholate	0.10%	110%
SDS	0.05%	0%
Triton X-100	0.10%	123%
Tween 20	0.10%	127%

Fig. 1 pH Activity



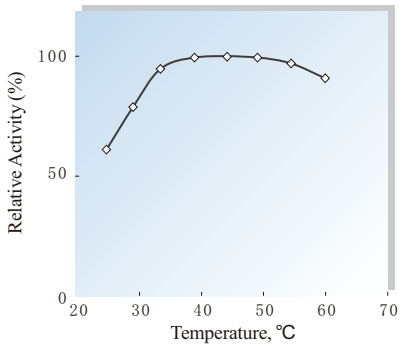
◇ : 100mM acetate buffer
■ : 100mM K-phosphate buffer
● : 100mM Glycine-NaOHbuffer

Fig. 2 pH Stability



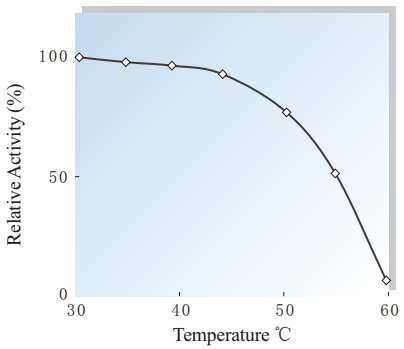
Treatment : 25℃,20hr
◇ : 100mM acetate buffer
■ : 100mM K-phosphate buffer
▲ : 100mM Tris-Cl buffer
● : 100mM Glycine-NaOHbuffer

Fig. 3 Temperature activity



Buffer: 100mM K-phosphate buffer , pH 7.0

Fig. 4 Thermal stability

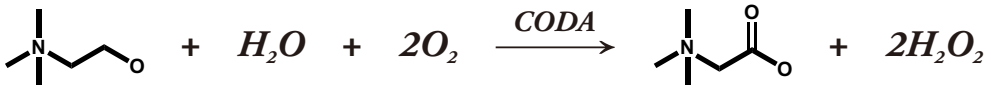


Treatment: 100mM K-phosphate buffer, pH 7.0, 30min

Choline Oxidase

Choline:oxygen l-oxidoreductase

Reaction



Choline *Betaine*

Product description

Catalog No.:	SDZ500500
Appearance:	Yellow amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.3.17
CAS Number:	9028-67-5
Storage temperature:	-20℃
Specific activity:	⩾ 15U/mg protein
Unit definition:	One unit will oxidate one micromole of choline per min at pH 8.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least one year	
Molecular weight:	61 kDa (SDS-PAGE)	
Isoelectric point:	5.1	
Michaelis constant:	5. 5×10^{-3}M (Choline)	
Optimum pH:	7.0~8.5	{Fig. 1}
Optimum temperature:	55℃	{Fig. 3}
pH Stability:	6.0~9.0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 55℃ (pH 8.0, 15min)	{Fig. 4}
Inhibitors:	Co^{2+},Cu^{2+},Fe^{3+},Mn^{2+},Ni^{2+},Zn^{2+},BME,NEM,Proclin,SDS, Triton X-100	
Effect of various chemicals:		{Table 1}

Table 1.

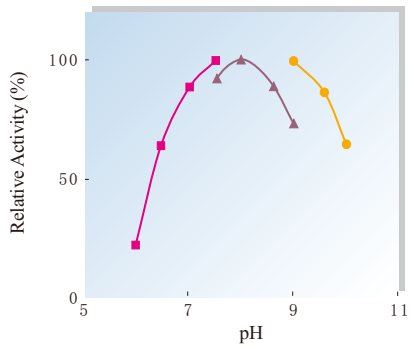
Effect of Various Chemicals on CODA

[The enzyme dissolved in 10mM Tris-HCl buffer, pH 8.0 (5U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	130%
$CoCl_2$	2.0	40%
$CuSO_4$	2.0	0%
$FeCl_3$	2.0	18%
$MgSO_4$	2.0	130%
$MnSO_4$	2.0	53%
$NiCl_2$	2.0	5%
$ZnSO_4$	2.0	9%

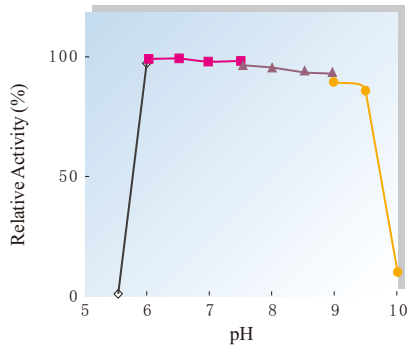
Chemical	Concn. (mM)	Residual activity
BME	2.0	15%
NEM	2.0	4%
EDTA	5.0	139%
NaN_3	20.0	106%
Proclin	0.045%	0%
Na-cholate	0.10%	103%
SDS	0.05%	62%
Triton X-100	0.10%	54%
Tween 20	0.10%	95%

Fig. 1 pH Activity



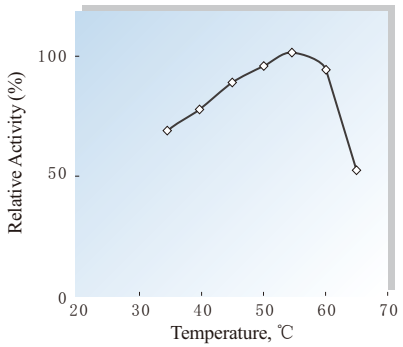
■ : 50mM phosphate buffer
▲ : 50mM Tris-Cl buffer
● : 50mM Glycine-NaOHbuffer

Fig. 2 pH Stability



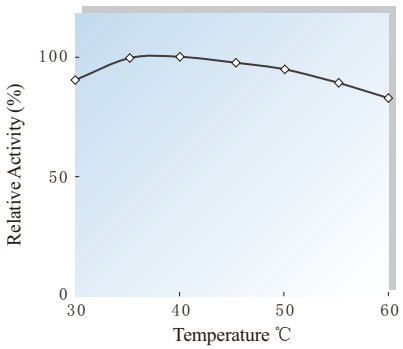
Treatment : 25℃,20hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Borate buffer
● : 50mM Glycine-NaOH

Fig. 3 Temperature activity



Buffer: 10mM Tris-Cl buffer , pH 8.0

Fig. 4 Thermal stability



Treatment: 10mM Tris-Cl buffer, pH 8.0, 15min

Creatinase

Creatine amidinohydrolase

Reaction

Creatine *Sarcosine* *Urea*

Product description

Catalog No.:	SDZ500360
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.5.3.3
CAS Number:	37340-58-2
Storage temperature:	-20℃
Specific activity:	⩾ 20U/mg protein
Unit definition:	One unit causes the formation of one micromole of sarcosine from creatine per min at pH 7.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least four years	
Molecular weight:	48kDa (SDS-PAGE)	
Isoelectric point:	5.1	
Michaelis constant:	2.1×10^{-2}M (Creatine)	
Optimum pH:	8.0~9.0	{Fig. 1}
Optimum temperature:	40℃	{Fig. 3}
pH Stability:	5.0~11.0 (25℃, 16hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 7.5, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},NEM,Proclin	
Effect of various chemicals:		{Table 1}

Table 1.

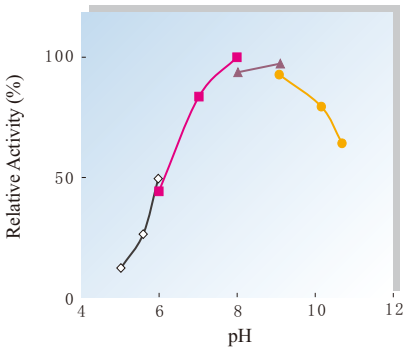
Effect of Various Chemicals on CRH

[The enzyme dissolved in 50mM K-phosphate buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	115%
$CoCl_2$	2.0	118%
$CuSO_4$	2.0	2.6%
$FeCl_3$	2.0	121%
$MgSO_4$	2.0	108%
$MnSO_4$	2.0	112%
$NiCl_2$	2.0	97%
$ZnSO_4$	2.0	95%
$K_4Fe(CN)_6$	2.0	103%

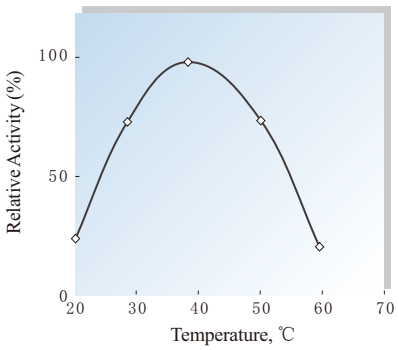
Chemical	Concn. (mM)	Residual activity
BME	2.0	94%
NEM	2.0	5.2%
EDTA	5.0	96%
NaN_3	20.0	94%
Proclin	0.045%	5%
Na-cholate	0.10%	104%
SDS	0.05%	106%
Triton X-100	0.10%	90%
Tween 20	0.10%	89%

Fig. 1 pH Activity



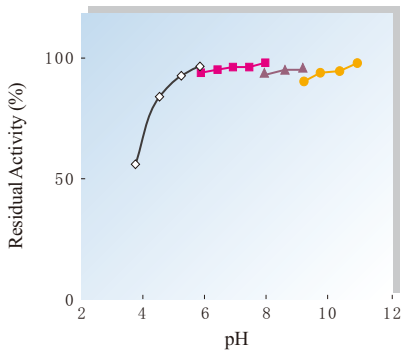
◇ : 50mM acetate buffe
■ : 50mM phosphate buffe
▲ : 50mM Tris-HCl buffer
● : 50mM glycine-NaOH buffer

Fig. 3 Temperature activity



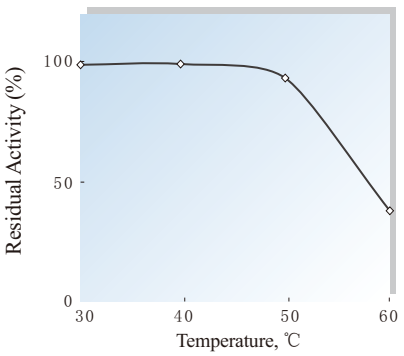
Buffer: 50mM K-phosphate buffer , pH 7.5

Fig. 2 pH Stability



Treatment : 25℃,16min
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM glycine-NaOH buffer

Fig. 4 Thermal stability



Treatment: 50mM K-phosphate buffer , pH 7.5 30min

Creatinase

Creatine amidinohydrolase

Reaction

Creatine *Sarcosine* *Urea*

Product description

Catalog No.:	SDZ500361
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.5.3.3
CAS Number:	37340-58-2
Storage temperature:	-20℃
Specific activity:	⩾ 10U/mg protein
Unit definition:	One unit causes the formation of one micromole of sarcosine from creatine per min at pH 7.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least four years	
Molecular weight:	48kDa (SDS-PAGE)	
Isoelectric point:	5.1	
Michaelis constant:	6.5×10^{-3}M (Creatine)	
Optimum pH:	6.0~9.0	{Fig. 1}
Optimum temperature:	50℃	{Fig. 3}
pH Stability:	5.0~10.5 (25℃, 24hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 7.5, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Zn^{2+},NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

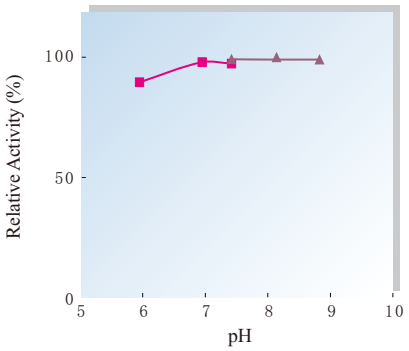
Effect of Various Chemicals on CRH

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	92%
$CoCl_2$	2.0	89%
$CuSO_4$	2.0	0%
$FeCl_3$	2.0	78%
$MgSO_4$	2.0	90%
$MnSO_4$	2.0	90%
$NiCl_2$	2.0	83%
$ZnSO_4$	2.0	0%
$K_4Fe(CN)_6$	2.0	90%

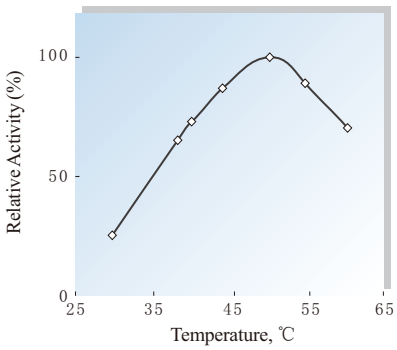
Chemical	Concn. (mM)	Residual activity
BME	2.0	90%
NEM	2.0	6%
EDTA	5.0	95%
NaN_3	20.0	92%
Proclin	0.045%	10%
Na-cholate	0.10%	100%
SDS	0.05%	18%
Triton X-100	0.10%	114%
Tween 20	0.10%	110%

Fig. 1 pH Activity



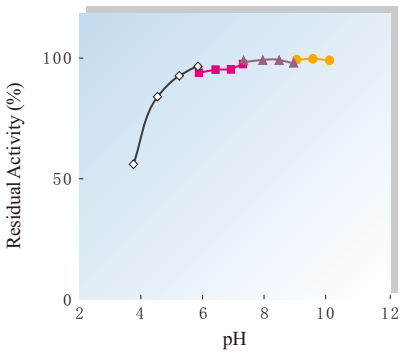
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer

Fig. 3 Temperature activity



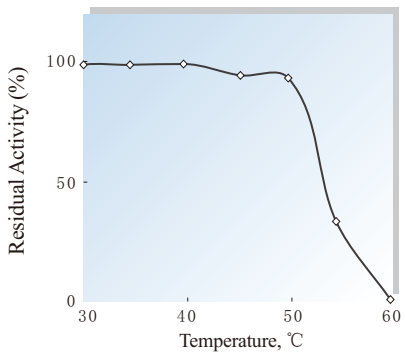
Buffer: 50mM K-phosphate buffer , pH 7.5

Fig. 2 pH Stability



Treatment : 25℃,24 min
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM glycine-NaOH buffer

Fig. 4 Thermal stability

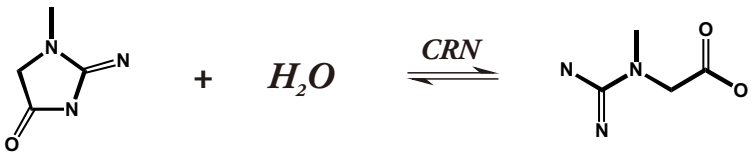


Treatment: 50mM K-phosphate buffer , pH 7.5 30min

Creatininase

Creatinine amidohydrolase

Reaction



Creatinine *Creatine*

Product description

Catalog No.:	SDZ500340
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.5.2.10
CAS Number:	9025-13-2
Storage temperature:	-20℃
Specific activity:	≥ 500U/mg protein
Unit definition:	One unit will convert one micromole of creatine to creatinine per min at pH 7.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	29kD (SDS-PAGE)	
Isoelectric point:	5.7	
Michaelis constant:	5.8×10^{-3}M (Creatine)	
Optimum pH:	5.5- 8.0	{Fig. 1}
Optimum temperature:	70℃	{Fig. 3}
pH Stability:	7.0-9.0 (25℃, 16hr)	{Fig. 2}
Thermal stability:	< 70℃ (pH 7.4, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Zn^{2+}	
Effect of various chemicals:		{Table 1}

Table 1.

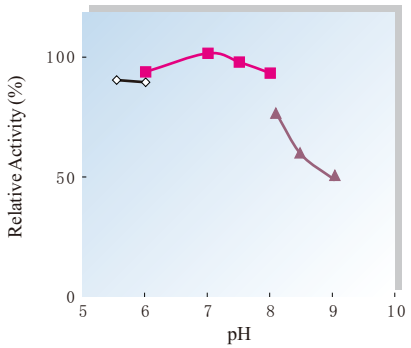
Effect of Various Chemicals on CRN

[The enzyme dissolved in 50mM Tris buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	100%
$CoCl_2$	2.0	300%
$CuSO_4$	2.0	24%
$FeCl_3$	2.0	118%
$MgSO_4$	2.0	100%
$MnSO_4$	2.0	120%
$NiCl_2$	2.0	100%
$ZnSO_4$	2.0	65%
$K_4Fe(CN)_6$	2.0	99%

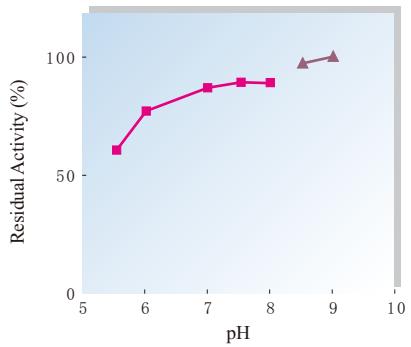
Chemical	Concn. (mM)	Residual activity
BME	2.0	120%
NEM	2.0	100%
EDTA	5.0	100%
NaN_3	20.0	100%
Proclin	0.045%	159%
Na-cholate	0.10%	125%
SDS	0.05%	125%
Triton X-100	0.10%	173%
Tween 20	0.10%	135%

Fig. 1 pH Activity



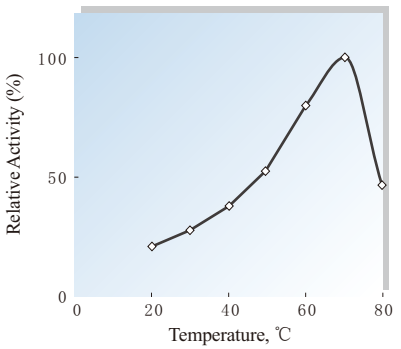
◇50mM acetate buffer
■50mM phosphate buffer
▲50mM carbonate buffer

Fig. 2 pH Stability



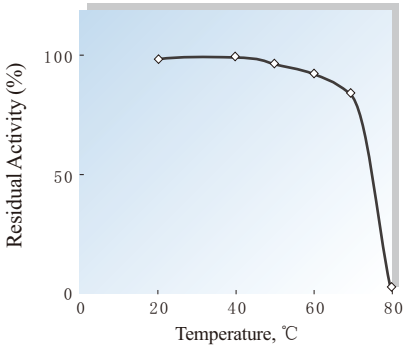
Treatment : 25℃,16hr
■ :50mM phosphate buffer
▲ :50mM carbonate buffer

Fig. 3 Temperature activity



Buffer: 50mM phosphate buffer , pH 7.4

Fig. 4 Thermal stability

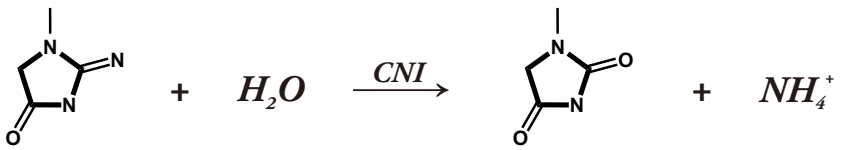


Treatment: 50mM phosphate buffer, pH 7.4, 30min

Creatinine Deiminase

Creatinine iminohydrolase

Reaction



Creatinine N-Methylhydantoin

Product description

Catalog No.:	SDZ500660
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.5.4.21
CAS Number:	37289-15-9
Storage temperature:	-20℃
Specific activity:	≥ 100U/mg protein
Unit definition:	One unit will cause the formation of one micromole of ammonia per min at pH 7.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	46kDa (SDS-PAGE)	
Isoelectric point:	5.8	
Michaelis constant:	6. 6×10^{-3}M (Creatinine)	
Optimum pH:	8.0	{Fig. 1}
Optimum temperature:	40~55℃	{Fig. 3}
pH Stability:	7.5~9.5 (30℃, 20hr)	{Fig. 2}
Thermal stability:	< 60℃ (pH 7.5, 60min)	{Fig. 4}
Inhibitors:	Co,Cu^{2+},Fe^{3+},Ni^{2+},Zn^{2+},SDS	
Effect of various chemicals:		{Table 1}

Table 1.

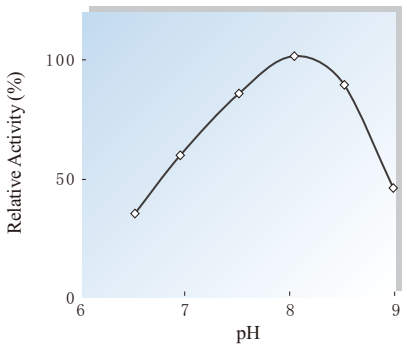
Effect of Various Chemicals on CNI

[The enzyme dissolved in 50mM K-phosphate buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	94%
$CoCl_2$	2.0	63%
$CuSO_4$	2.0	43%
$FeCl_3$	2.0	74%
$MgSO_4$	2.0	85%
$MnSO_4$	2.0	91%
$NiCl_2$	2.0	76%
$ZnSO_4$	2.0	15%
$K_4Fe(CN)_6$	2.0	88%

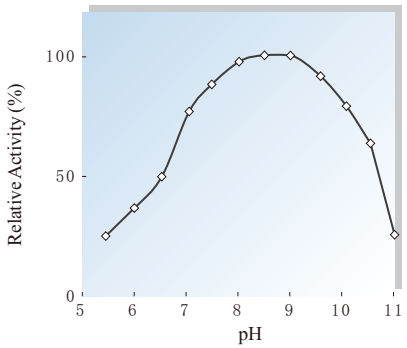
Chemical	Concn. (mM)	Residual activity
BME	2.0	84%
NEM	2.0	82%
EDTA	5.0	83%
NaN_3	20.0	81%
Proclin	0.045%	89%
Na-cholate	0.10%	90%
SDS	0.05%	74%
Triton X-100	0.10%	87%
Tween 20	0.10%	90%

Fig. 1 pH Activity



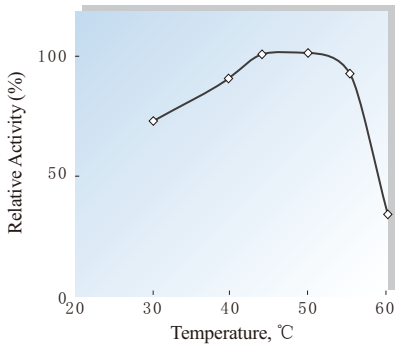
◇ :Britton-Robison buffer 37℃

Fig. 2 pH Stability



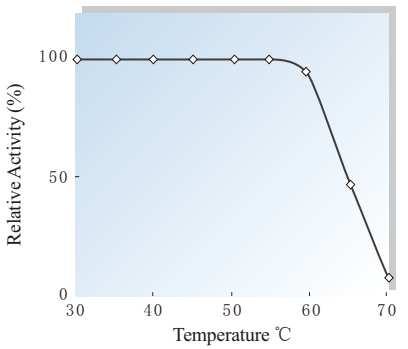
Treatment :30℃,20hr
◇ : Britton-Robison buffer

Fig. 3 Temperature activity



Buffer: 50mM K-phosphate buffer , pH 7.5

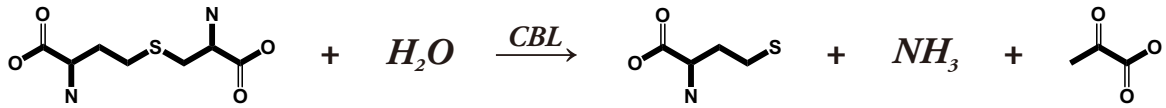
Fig. 4 Thermal stability



Treatment: 50mM K-phosphate buffer, pH 7.5,60min

Cystathionine β-Lyase

Reaction



L-cystathionine *L-homocysteine* *Pyruvate*

Product description

Catalog No.:	SDZ500490
Appearance:	Yellowish amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 4.4.1.13
CAS Number:	9055-05-4
Storage temperature:	-20℃
Specific activity:	⩾ 45U/mg protein
Unit definition:	One unit will hydrolyze one micromole of cystathionine per min at pH 8.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	43kD (SDS-PAGE)	
Isoelectric point:	6.2	
Michaelis constant:	1. 0×10^{-3}M (L-Cystathionine)	
Optimum pH:	7.5-9.0	{Fig. 1}
Optimum temperature:	37℃~42℃	{Fig. 3}
pH Stability:	5.0~9.5 (25℃, 16hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 7.5, 30min)	{Fig. 4}
Inhibitors:	Co^{2+},Cu^{2+},Fe^{3+},Mn^{2+},Ni^{2+},Zn^{2+},NEM,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

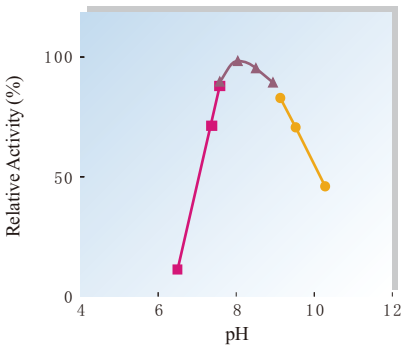
Effect of Various Chemicals on CBL

[The enzyme dissolved in 50mM Tris-HCl buffer, pH8.0 (20U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	119%
$CoCl_2$	2.0	3%
$CuSO_4$	2.0	2%
$FeCl_3$	2.0	20%
$MgSO_4$	2.0	116%
$MnSO_4$	2.0	74%
$NiCl_2$	2.0	19%
$ZnSO_4$	2.0	2%

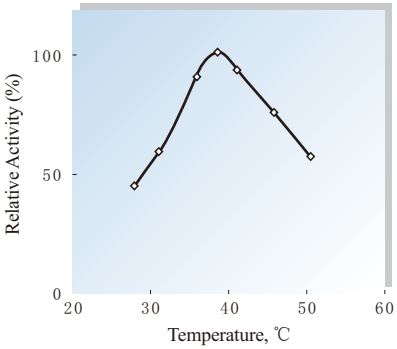
Chemical	Concn. (mM)	Residual activity
BME	2.0	98%
NEM	2.0	12%
EDTA	5.0	113%
NaN_3	20.0	110%
Na-cholate	0.10%	107%
SDS	0.05%	4%
Triton X-100	0.10%	110%
Tween 20	0.10%	111%

Fig. 1 pH Activity



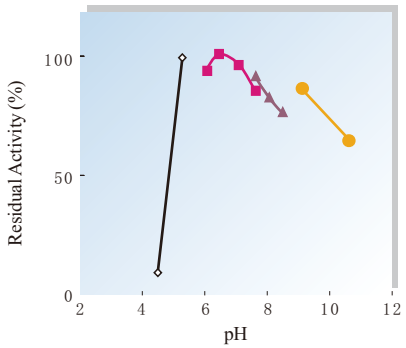
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM Glycine-NaOH buffer

Fig. 3 Temperature activity



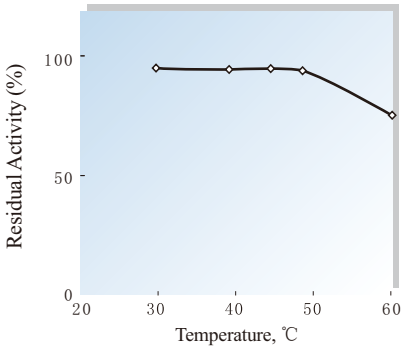
Buffer: 50mM Tris-HCl buffer, pH 8.0

Fig. 2 pH Stability



Treatment : 25℃,16hr
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM Na_2CO_3 buffer

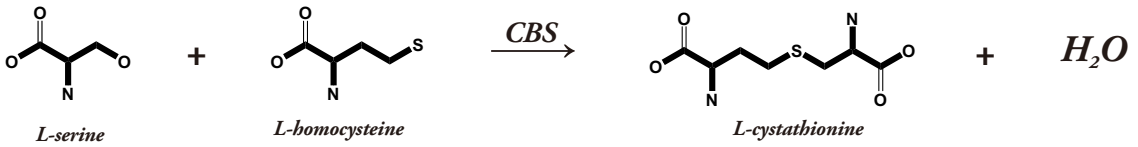
Fig. 4 Thermal stability



Treatment: 50mM K-phosphate buffer, pH7.5, 30min

Cystathionine β-Synthase

Reaction



L-serine + *L-homocysteine* → *L-cystathionine* + H_2O

Product description

Catalog No.:	SDZ500480
Appearance:	Yellowish amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 4.2.1.22
CAS Number:	9023-99-8
Storage temperature:	-20℃
Specific activity:	⩾ 5U/mg protein
Unit definition:	One unit causes the formation of one micromole of cystathionine per min at pH 8.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	56kD (SDS-PAGE)	
Isoelectric point:	6.8	
Michaelis constant:	5.8×10^{-5}M (L-Homocysteine)	
Optimum pH:	8.0	{Fig. 1}
Optimum temperature:	35℃-45℃	{Fig. 3}
pH Stability:	6.0-10.0 (25℃, 16hr)	{Fig. 2}
Thermal stability:	< 40℃ (pH 7.5, 30min)	{Fig. 4}
Inhibitors:	SDS	
Effect of various chemicals:		{Table 1}

Table 1.

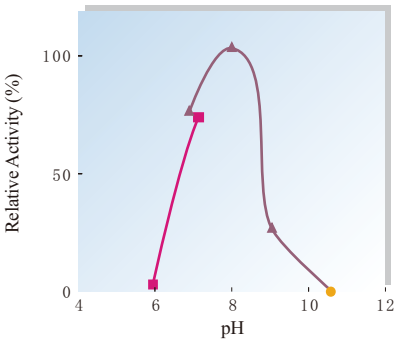
Effect of Various Chemicals on CBS

[The enzyme dissolved in 50mM Tris-HCl buffer, pH8.0 (1U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	99%
$CoCl_2$	2.0	98%
$CuSO_4$	2.0	98%
$FeCl_3$	2.0	85%
$MgSO_4$	2.0	94%
$MnSO_4$	2.0	97%
$NiCl_2$	2.0	105%
$ZnSO_4$	2.0	89%

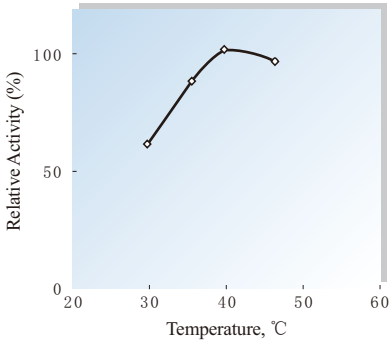
Chemical	Concn. (mM)	Residual activity
BME	2.0	99%
NEM	2.0	98%
EDTA	5.0	100%
NaN_3	20.0	102%
Na-cholate	0.10%	103%
SDS	0.05%	75%
Triton X-100	0.10%	108%
Tween 20	0.10%	108%

Fig. 1 pH Activity



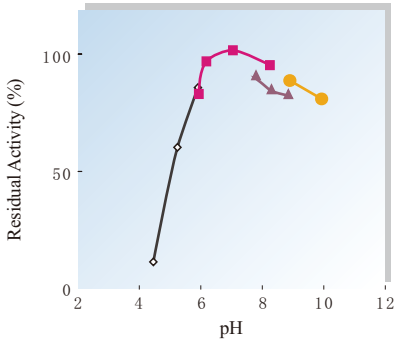
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM Glycine-NaOH buffer

Fig. 3 Temperature activity



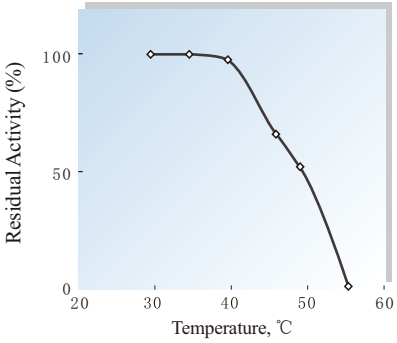
Buffer: 50mM Tris-HCl buffer, pH 8.0

Fig. 2 pH Stability



Treatment : 25℃,16hr
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM Glycine-NaOH buffer

Fig. 4 Thermal stability



Treatment: 50mM phosphate buffer, pH 7.5, 30min

Diaphorase

Reaction

$$NAD(P)H + H^+ + Acceptor(ox) \xrightarrow{DIA} NAD(P)^+ + Acceptor(red)$$

Product description

Catalog No.:	SDZ500620
Appearance:	Yellowish amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.6.5.2
CAS Number:	9032-20-6
Storage temperature:	-20℃
Specific activity:	⩾ 35U/mg protein
Unit definition:	One unit will convert one micromole of NADH to NAD^+ per min at pH 8.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	24KD	
Isoelectric point:	6.0	
Michaelis constant:	2.6 ×10^{-5}M (NADH)	
Optimum pH:	8.0~11.0	{Fig. 1}
Optimum temperature:	40℃~65℃	{Fig. 3}
pH Stability:	7.0-10.0 (25℃, 24hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 8.0, 30min)	{Fig. 4}
Inhibitors:	Co^{2+},Cu^{2+},Fe^{3+},Mn^{2+},Ni^{2+},Zn^{2+},NEM,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

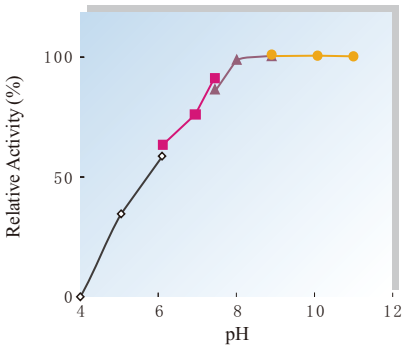
Effect of Various Chemicals on DIA

[The enzyme dissolved in 100mM Tris-HCl buffer, pH8.0 + 0.1%BSA(5U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	88%
$CoCl_2$	2.0	40%
$CuSO_4$	2.0	44%
$FeCl_3$	2.0	28%
$MgSO_4$	2.0	93%
$MnSO_4$	2.0	60%
$NiCl_2$	2.0	46%
$ZnSO_4$	2.0	1%
$K_4Fe(CN)_6$	2.0	100%

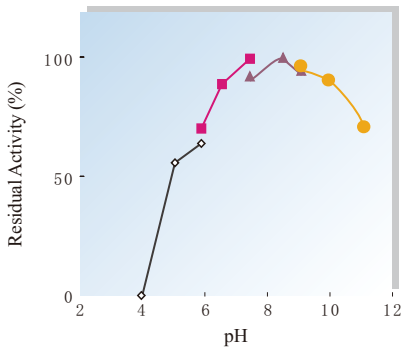
Chemical	Concn. (mM)	Residual activity
BME	2.0	96%
NEM	2.0	68%
EDTA	5.0	100%
NaN_3	20.0	100%
Proclin	0.045%	100%
Na-cholate	0.10%	88%
SDS	0.05%	42%
Triton X-100	0.10%	100%
Tween 20	0.10%	100%

Fig. 1 pH Activity



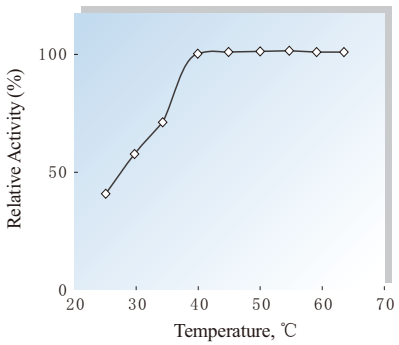
◇: 100mM acetate buffer
■: 100mM phosphate buffer
▲: 100mM Tris-HCl buffer
●: 100mM Glycine-NaOH buffer

Fig. 2 pH Stability



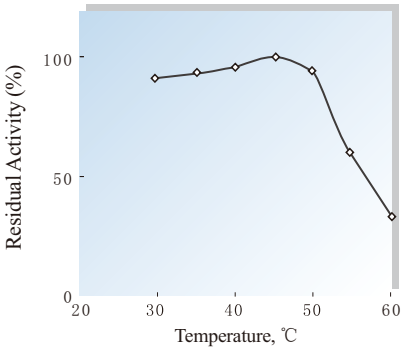
Treatment : 25℃,20hr
◇: 100mM acetate buffer
■: 100mM phosphate buffer
▲: 100mM Tris-HCl buffer
●: 100mM Glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 100mM phosphate buffer, pH 8.0

Fig. 4 Thermal stability



Treatment: 100mM phosphate buffer, pH 8.0, 30min

Fructosyl Amine-Oxygen Oxidoreductase

Ketoamine oxidase

Reaction

$$Fructosyl\text{-}L\text{-}amino\ acid + H_2O + O_2 \xrightarrow{FAOD} L\text{-}amino\ acid + Glucosone + H_2O_2$$

Product description

Catalog No.:	SDZ500013
Appearance:	Yellowish amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.5.3.X
Storage temperature:	-20℃
Specific activity:	≥ 20U/mg protein
Unit definition:	One unit will oxidate one micromole fructosyl propylamine at pH 8.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	50KD (SDS-PAGE)	
Isoelectric point:	6.4	
Michaelis constant:	1.6 ×10^{-3}M (Fructosyl Propylamine)	
Optimum pH:	7.5~9.0	{Fig. 1}
Optimum temperature:	37℃~55℃	{Fig. 3}
pH Stability:	6.0-10.0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 45℃ (pH 8.0, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{3+},Zn^{2+},NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

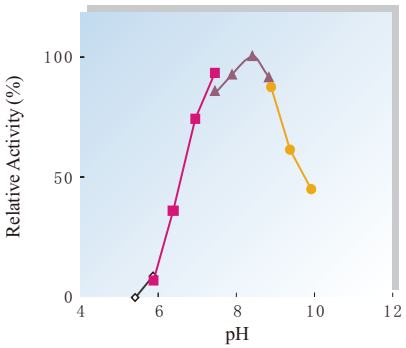
Effect of Various Chemicals on FAOD

[The enzyme dissolved in 100mM Tris-HCl buffer, pH8.0 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	105%
$CoCl_2$	2.0	100%
$CuSO_4$	2.0	4%
$FeCl_3$	2.0	78%
$MgSO_4$	2.0	109%
$MnSO_4$	2.0	109%
$NiCl_2$	2.0	100%
$ZnSO_4$	2.0	47%
$K_4Fe(CN)_6$	2.0	97%

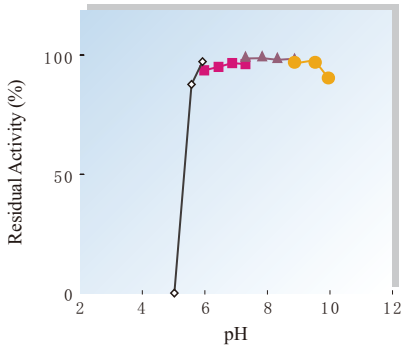
Chemical	Concn. (mM)	Residual activity
BME	2.0	105%
NEM	2.0	39%
EDTA	5.0	103%
NaN_3	20.0	108%
Proclin	0.045%	0%
Na-cholate	0.10%	109%
SDS	0.05%	10%
Triton X-100	0.10%	96%
Tween 20	0.10%	108%

Fig. 1 pH Activity



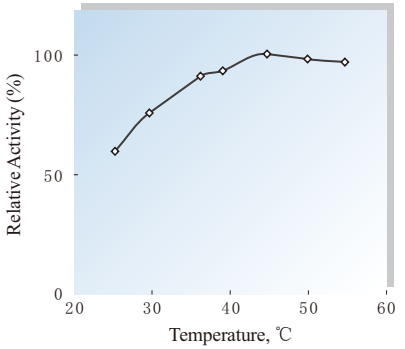
◇: 100mM acetate buffer
■: 100mM phosphate buffer
▲: 100mM Tris-HCl buffer
●: 100mM Glycine-NaOH buffer

Fig. 2 pH Stability



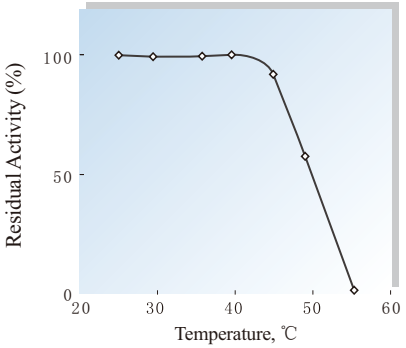
Treatment : 25℃,20hr
◇: 100mM acetate buffer
■: 100mM phosphate buffer
▲: 100mM Tris-HCl buffer
●: 100mM Glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 100mM Tris-HCl buffer, pH 8.5

Fig. 4 Thermal stability



Treatment: 100mM Tris-HCl buffer, pH 8.0, 30min

β-Galactosidase

β-D-Galactoside galactohydrolase

Reaction

β-D-Galactoside-R　　D-Galactose

Product description

Catalog No.:	SDZ500120
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.2.1.23
CAS Number:	9031-11-2
Storage temperature:	-20℃
Specific activity:	≥ 400U/mg protein
Unit definition:	One unit will cause the formation of one micromole of ONP from ONPG per min at pH 7.3 at 37℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	118 kDa (SDS-PAGE)	
Isoelectric point:	4.6	
Michaelis constant:	3.4×10^{-4}M (ONPG)	
Optimum pH:	7.0	{Fig. 1}
Optimum temperature:	45℃~55℃	{Fig. 3}
pH Stability:	5.5~9.5 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 45℃ (pH 7.3, 15min)	{Fig. 4}
Inhibitors:	Co^{2+},Cu^{2+},Fe^{3+},Ni^{2+},Zn^{2+},Proclin	
Effect of various chemicals:		{Table 1}

Table 1.

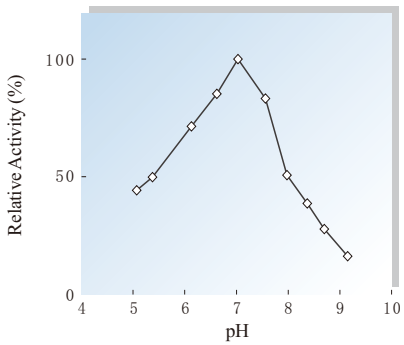
Effect of Various Chemicals on GAL

[The enzyme dissolved in 50mM MOPS buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	85%
$CoCl_2$	2.0	41%
$CuSO_4$	2.0	11%
$FeCl_3$	2.0	78%
$MgSO_4$	2.0	106%
$MnSO_4$	2.0	86%
$NiCl_2$	2.0	48%
$ZnSO_4$	2.0	9%
BME	2.0	92%

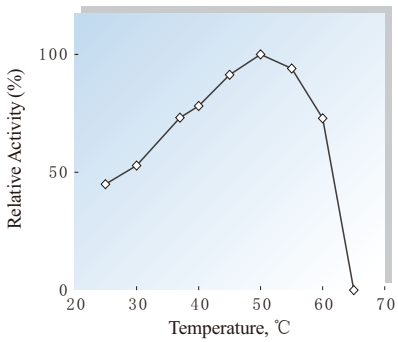
Chemical	Concn. (mM)	Residual activity
NEM	2.0	87%
EDTA	5.0	95%
NaN_3	20.0	88%
Proclin	0.045%	64%
Boric Acid-Borax	2.0	104%
Na-cholate	0.10%	89%
SDS	0.05%	88%
Triton X-100	0.10%	104%
Tween 20	0.10%	99%

Fig. 1 pH Activity



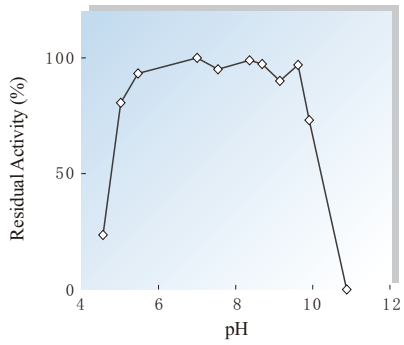
Buffer: Britton-Robinson Buffer

Fig. 3 Temperature activity



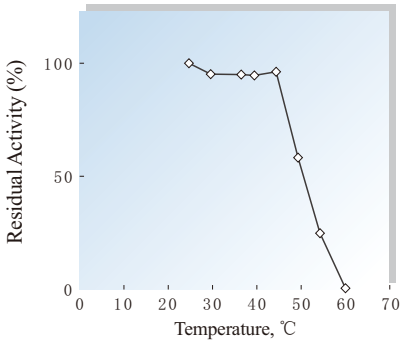
Buffer: 100mM phosphate buffer,pH 7.3

Fig. 2 pH Stability



Treatment : 25℃,20hr
Buffer: Britton-Robinson Buffer

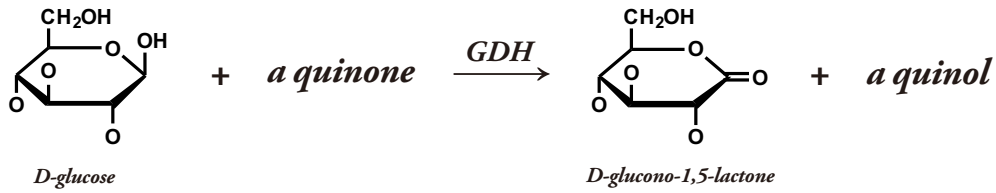
Fig. 4 Thermal stability



Treatment: 100mM phosphate buffer,pH7.3, 15min

Glucose Dehydrogenase
(FAD-dependent)

Reaction



D-glucose *D-glucono-1,5-lactone*

Product description

Catalog No.:	SDZ500420
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.5.9
CAS Number:	37250-84-3
Storage temperature:	-20℃
Specific activity:	≥ 800U/mg protein
Unit definition:	One unit will convert one micromole of D-glucose to D-glucono-1,5-lactone per min at pH 7.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	97kD (SDS-PAGE)	
Isoelectric point:	6.0	
Michaelis constant:	6. 0×10^{-2}M (α -D-Glucose)	
Optimum pH:	6.5~7.0	{Fig. 1}
Optimum temperature:	40℃~60℃	{Fig. 3}
pH Stability:	4.0-9.0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 40℃ (pH7.0, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+}, Zn^{2+}	
Effect of various chemicals:		{Table 1}

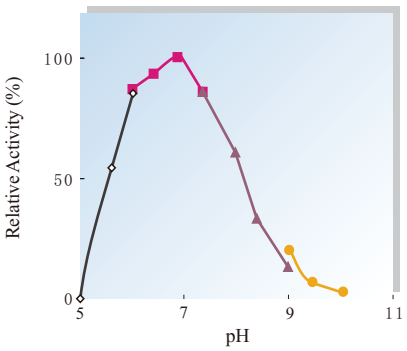
Table 1.

Effect of Various Chemicals on GDH (FAD-dependent)
[The enzyme dissolved in 50mM Tris-HCl buffer with 0.1% BSA, pH7.5 (10U/ml) was incubated with each chemical at 37℃ for 1.5hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	99%
$CoCl_2$	2.0	97%
$CuSO_4$	2.0	77%
$FeCl_3$	2.0	99%
$MgSO_4$	2.0	100%
$MnSO_4$	2.0	105%
$NiCl_2$	2.0	83%
$ZnSO_4$	2.0	55%

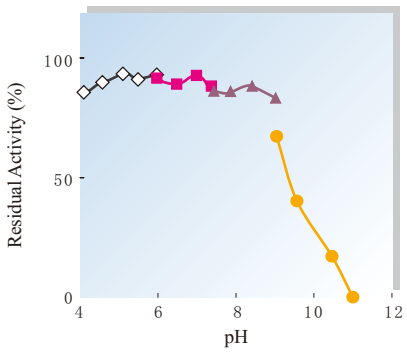
Chemical	Concn. (mM)	Residual activity
BME	2.0	95%
NEM	2.0	89%
EDTA	5.0	92%
NaN_3	20.0	91%
Boric Acid-Borax	2.0	101%
Na-cholate	0.10%	99%
SDS	0.05%	94%
Triton X-100	0.10%	105%
Tween 20	0.10%	104%

Fig. 1 pH Activity



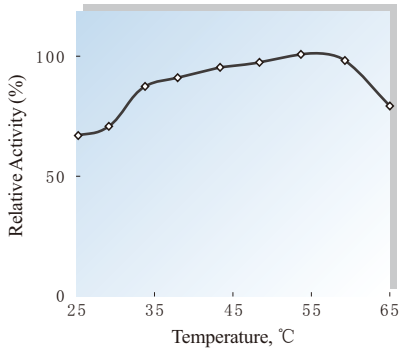
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM Glycine-NaOH buffer

Fig. 2 pH Stability



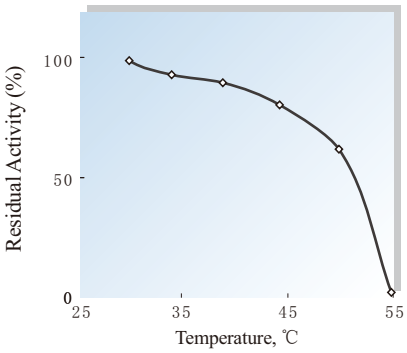
Treatment : 25℃,20hr
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM Glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 50mM phosphate buffer, pH 7.0

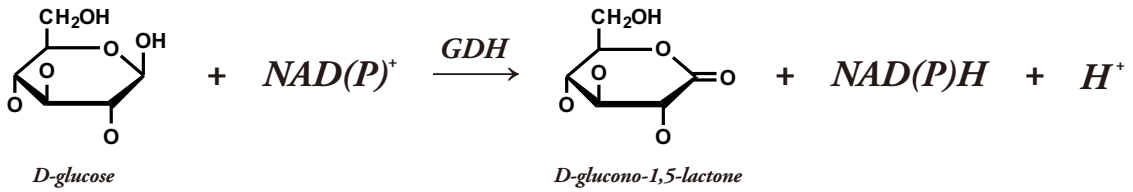
Fig. 4 Thermal stability



Treatment: 50mM phosphate buffer, pH 7.0, 30min

Glucose Dehydrogenase
(NAD(P)$^+$-dependent)

Reaction



D-glucose *D-glucono-1,5-lactone*

Product description

Catalog No.:	SDZ500422
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.47
CAS Number:	9028-53-9
Storage temperature:	-20℃
Specific activity:	⩾ 600U/mg protein
Unit definition:	one unit will convert one micromole of D-glucose to D-glucono-1,5-lactone per min at pH 8.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	29KD (SDS-PAGE)	
Isoelectric point:	6.5	
Michaelis constant:	9.2 ×10^{-3}M(D-Glucose) 8.6×10^{-5}M (NAD^+)	
Optimum pH:	9.0-9.5	{Fig. 1}
Optimum temperature:	55℃	{Fig. 3}
pH Stability:	6.0-10.0 (25℃, 24hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 8.0, 30min)	{Fig. 4}
Inhibitors:	NEM,SDS	
Effect of various chemicals:		{Table 1}

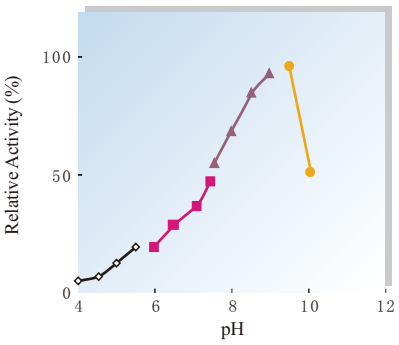
Table 1.

Effect of Various Chemicals on GDH (NAD-dependent)
[The enzyme dissolved in 50mM Tris-HCl buffer with 0.1% BSA, pH7.5 (10U/ml) was incubated with each chemical at 30℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	96%
$CoCl_2$	2.0	97%
$CuSO_4$	2.0	94%
$FeCl_3$	2.0	103%
$MgSO_4$	2.0	97%
$MnSO_4$	2.0	99%
$NiCl_2$	2.0	94%
$ZnSO_4$	2.0	91%
$K_4Fe(CN)_6$	2.0	111%

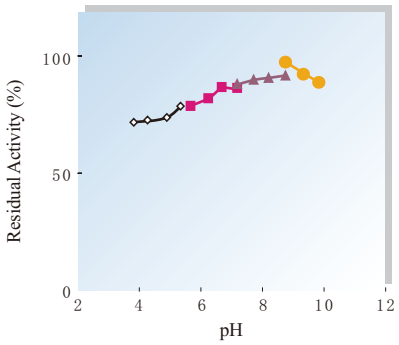
Chemical	Concn. (mM)	Residual activity
BME	2.0	96%
NEM	2.0	59%
EDTA	5.0	94%
NaN_3	20.0	96%
Boric Acid-Borax	2.0	102%
Na-cholate	0.10%	97%
SDS	0.05%	44%
Triton X-100	0.10%	96%
Tween 20	0.10%	96%

Fig. 1 pH Activity



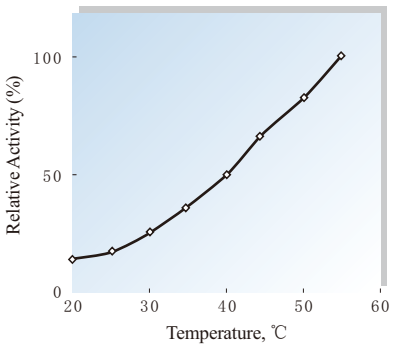
◇: 100mM acetate buffer
■: 100mM phosphate buffer
▲: 100mM Tris-HCl buffer
●: 100mM carbonate buffer

Fig. 2 pH Stability



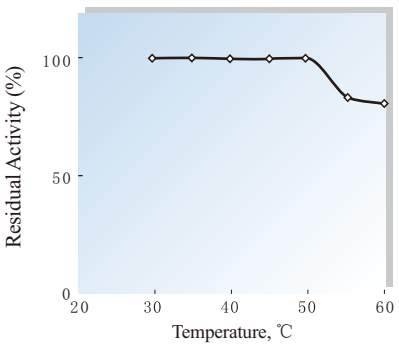
Treatment : 25℃,24hr
◇: 100mM acetate buffer
■: 100mM phosphate buffer
▲: 100mM Tris-HCl buffer
●: 100mM carbonate buffer

Fig. 3 Temperature activity



Buffer: 100mM Tris-HCl buffer, pH 8.0

Fig. 4 Thermal stability

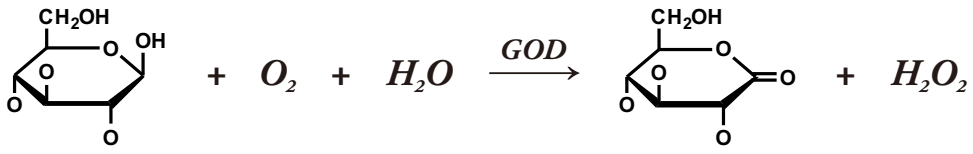


Treatment: 100mM Tris-HCl buffer, pH 8.0, 30min

Glucose Oxidase

β-D-Glucose:oxygen 1-oxidoreductase

Reaction



β -*D-Glucose* *D-Glucono-* δ *-lactone*

Product description

Catalog No.:	SDZ500061
Appearance:	Yellow amorphous powder
Source:	Aspergillus niger
Enzyme Commission Number:	EC 1.1.3.4
CAS Number:	9001-37-0
Storage temperature:	-20℃
Specific activity:	⩾ 300U/mg protein
Unit definition:	One unit will oxidize one micromole of glucose per min at pH 5.7 at 37℃.

Properties

Stability:	Stable at -20℃ for at least three years	
Molecular weight:	approx 100 kDa (SDS-PAGE)	
Isoelectric point:	5.2	
Michaelis constant:	4.9×10^{-2}M (D-Glucose)	
Optimum pH:	4.5~6.5	{Fig. 1}
Optimum temperature:	40℃~60℃	{Fig. 3}
pH Stability:	5.0~7.5 (25℃, 18hr)	{Fig. 2}
Thermal stability:	< 40℃ (pH 5.7, 60min)	{Fig. 4}
Inhibitors:	Cu^{2+}, Fe^{3+}, Mg^{2+}	
Effect of various chemicals:		{Table 1}

Table 1.

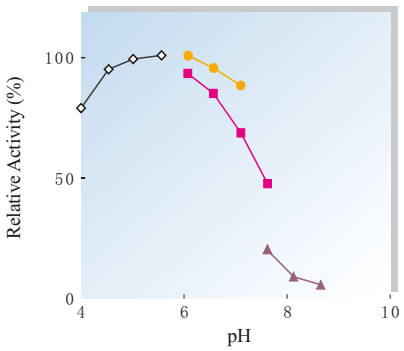
Effect of Various Chemicals on GOD

[The enzyme dissolved in 10mM MES buffer, pH 5.7,containing 0.1% triton X-100 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	100%
$CoCl_2$	2.0	95%
$CuSO_4$	2.0	32%
$FeCl_3$	2.0	77%
$MgSO_4$	2.0	71%
$MnSO_4$	2.0	83%
$NiCl_2$	2.0	93%
$ZnSO_4$	2.0	100%
$K_4Fe(CN)_6$	2.0	100%

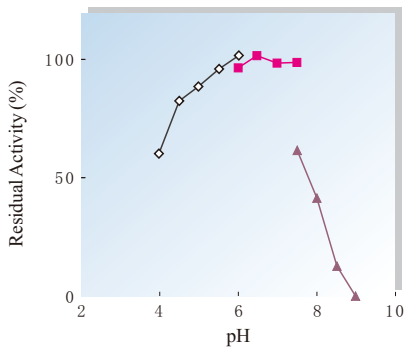
Chemical	Concn. (mM)	Residual activity
BME	2.0	89%
NEM	2.0	84%
EDTA	5.0	90%
NaN_3	20.0	90%
Proclin	0.045%	93%
Na-cholate	0.10%	94%
SDS	0.05%	92%
Triton X-100	0.10%	92%
Tween 20	0.10%	95%

Fig. 1 pH Activity



◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM MES buffer

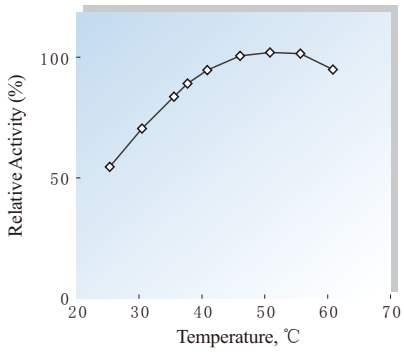
Fig. 2 pH Stability



Treatment : 25℃,18hr

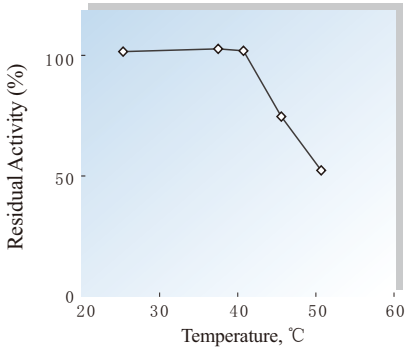
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer

Fig. 3 Temperature activity



Buffer: 79mM MES buffer , pH 5.7

Fig. 4 Thermal stability

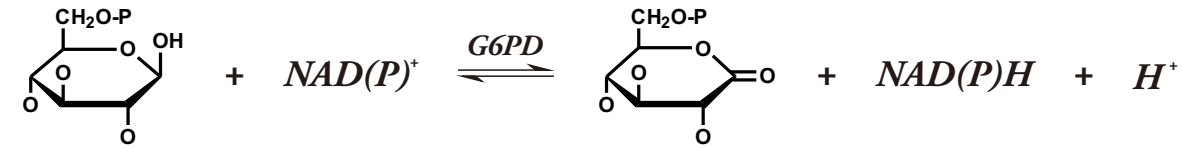


Treatment: 100mM MES buffer, pH 5.7, 60min

Glucose-6-Phosphate Dehydrogenase

D-Glucose-6-phsphate:NAD(P)$^+$ 1-oxidoreductase

Reaction



D-Glucose 6-phosphate *D-Glucono-δ-lactone-6-phosphate*

Product description

Catalog No.:	SDZ500131
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.49
CAS Number:	9001-40-5
Storage temperature:	-20℃
Specific activity:	≥ 500U/mg protein
Unit definition:	One unit will oxidate one micromole of D-glucose 6-phosphate(G-6-P) per min at pH 7.8 at 30℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	57 kDa (SDS-PAGE)	
Isoelectric point:	4.8	
Michaelis constant:	3.7×10^{-4}M (NAD^+)	
	1.9×10^{-4}M (G-6-P)	
Optimum pH:	8.5~9.0	{Fig. 1}
Optimum temperature:	45℃~50℃	{Fig. 3}
pH Stability:	5.0~10.0 (25℃, 18hr)	{Fig. 2}
Thermal stability:	< 40℃ (pH 7.5, 30min)	{Fig. 4}
Inhibitors:	Ca^{2+},Co^{2+}, Cu^{2+},Fe^{3+},Ni^{2+},Zn^{2+},NaN_3,Proclin,SDS,Tween-20	
Effect of various chemicals:		{Table 1}

Table 1.

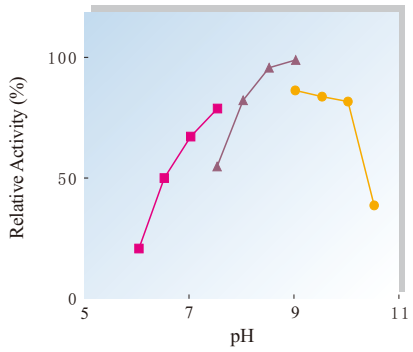
Effect of Various Chemicals on G6PD

[The enzyme dissolved in 55mM Tris-HCl buffer, pH 7.8(20U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	51%
$CoCl_2$	2.0	2%
$CuSO_4$	2.0	0%
$FeCl_3$	2.0	2%
$MgSO_4$	2.0	124%
$MnSO_4$	2.0	103%
$NiCl_2$	2.0	43%
$ZnSO_4$	2.0	1%
BME	2.0	94%

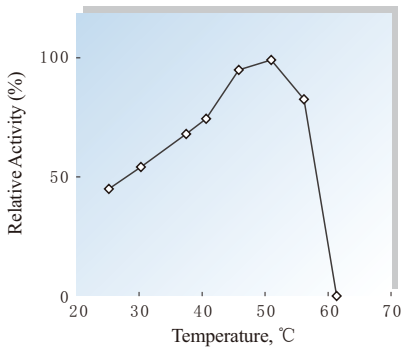
Chemical	Concn. (mM)	Residual activity
NEM	2.0	93%
EDTA	5.0	93%
NaN_3	20.0	71%
Proclin	0.045%	0%
Boric Acid-Borax	50.0	105%
Na-cholate	0.10%	98%
SDS	0.05%	3%
Triton X-100	0.10%	91%
Tween 20	0.10%	68%

Fig. 1 pH Activity



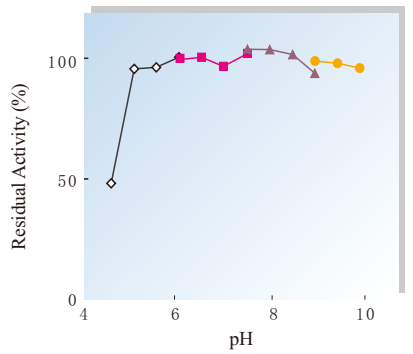
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM glycine-NaOH buffer

Fig. 3 Temperature activity



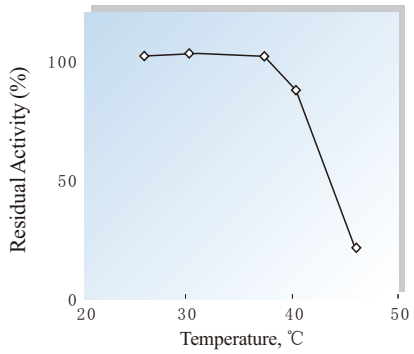
Buffer: 55mM Tris-HCl buffer , pH 7.5

Fig. 2 pH Stability



Treatment : 25℃,18hr
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM borate buffer

Fig. 4 Thermal stability

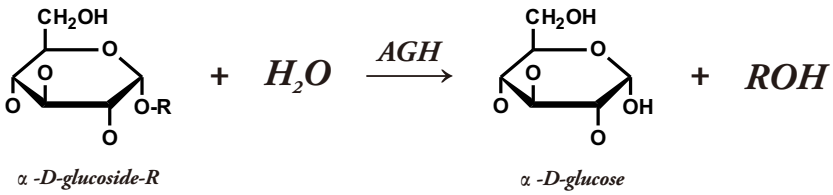


Treatment: 55mM Tris-HCl buffer with 0.1%BSA,pH 7.5, 30min

α-Glucosidase

α -D-Glucoside glucohydrolase

Reaction



α -D-glucoside-R　　α -D-glucose

Product description

Catalog No.:	SDZ500440
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.2.1.20
CAS Number:	9001-42-7
Storage temperature:	-20℃
Specific activity:	≥ 100U/mg protein
Unit definition:	One unit will convert one micromole of PNPG to PNP per min at pH 7.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	65kD (SDS-PAGE)	
Isoelectric point:	6.0	
Michaelis constant:	1.4 ×10^{-3}M (PNPG)	
Optimum pH:	6.0~6.5	{Fig. 1}
Optimum temperature:	60℃	{Fig. 3}
pH Stability:	6.0-8.5 (25℃, 24hr)	{Fig. 2}
Thermal stability:	< 60℃ (pH 7.0, 30min)	{Fig. 4}
Effect of various chemicals:	Cu^{2+} ,Fe^{3+},Ni^{2+}	{Table 1}

Table 1.

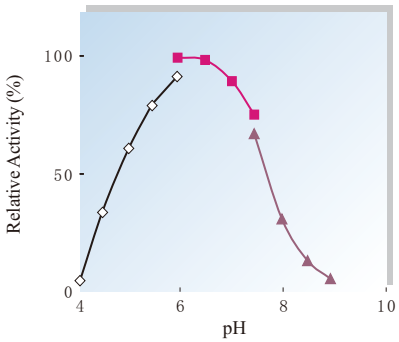
Effect of Various Chemicals on AGH

[The enzyme dissolved in 20mM Tris-HCl buffer, pH 7.0 (5U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	103%
$CoCl_2$	2.0	87%
$CuSO_4$	2.0	11%
$FeCl_3$	2.0	7%
$MgSO_4$	2.0	105%
$MnSO_4$	2.0	102%
$NiCl_2$	2.0	79%
$ZnSO_4$	2.0	90%
$K_4Fe(CN)_6$	2.0	111%

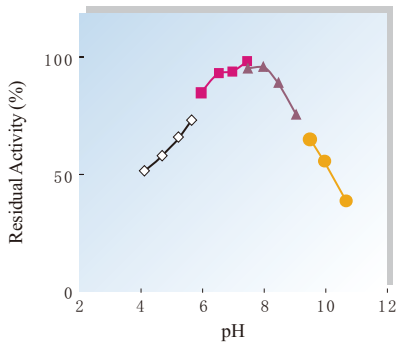
Chemical	Concn. (mM)	Residual activity
BME	2.0	100%
NEM	2.0	102%
EDTA	5.0	105%
NaN_3	20.0	117%
Proclin	0.045%	103%
Na-cholate	0.10%	98%
SDS	0.05%	92%
Triton X-100	0.10%	105%
Tween 20	0.10%	109%

Fig. 1 pH Activity



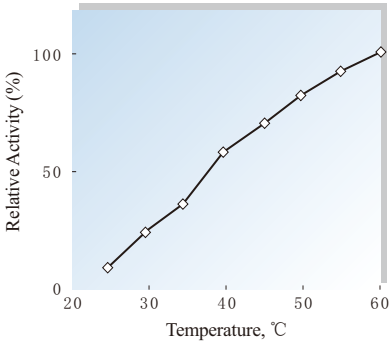
◇: 100mM acetate buffer
■: 100mM phosphate buffer
▲: 100mM borate buffer

Fig. 2 pH Stability



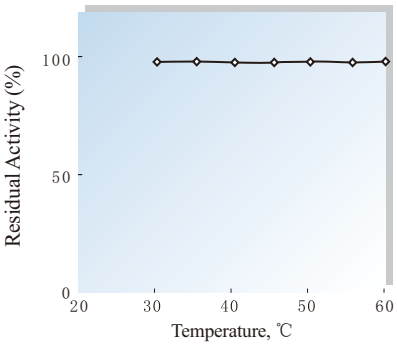
Treatment : 25℃,24hr
◇: 100mM acetate buffer
■: 100mM phosphate buffer
▲: 100mM Tris-HCl buffer
●: 100mM carbonate buffer

Fig. 3 Temperature activity



Buffer: 100mM phosphate buffer, pH 7.0

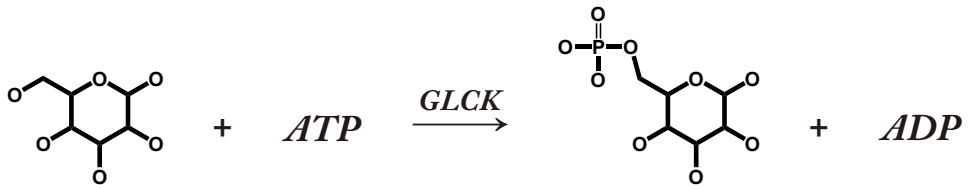
Fig. 4 Thermal stability



Treatment: 100mM phosphate buffer, pH 7.0, 30min

Glucose Kinase

Reaction



D-Glucose *D-Glucose-6-phosphate*

Product description

Catalog No.:	SDZ500600
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 2.7.1.2
CAS Number:	9001-36-9
Storage temperature:	-20℃
Specific activity:	≥ 200U/mg protein
Unit definition:	One unit will convert one micromole of D-glucose to D-glucose-6-phosphate per min at pH 8.0 at 30℃ .

Properties

Stability:	Stable at -20℃ for at least one year	
Molecular weight	33kDa (SDS-PAGE)	
Isoelectric point:	5. 7	
Michaelis constant:	8. 0×10^{-4}M (D-Glucose)	
Optimum pH:	9.0-10.0	{Fig. 1}
Optimum temperature:	40℃~50℃	{Fig. 3}
pH Stability:	5.5~10. 0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 7.0, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{3+}, SDS	
Effect of various chemicals:		{Table 1}

Table 1.

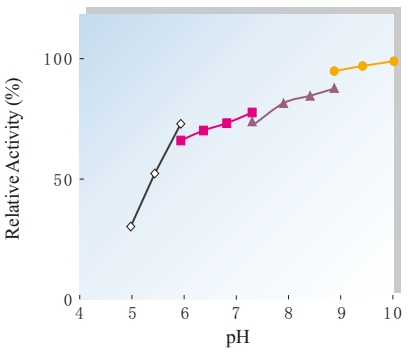
Effect of Various Chemicals on GLCK

[The enzyme dissolved in 50mM Tris-HCl buffer +0.1%BSA, pH 8.0 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	100%
$CoCl_2$	2.0	90%
$CuSO_4$	2.0	0%
$FeCl_3$	2.0	26%
$MgSO_4$	2.0	100%
$MnSO_4$	2.0	100%
$NiCl_2$	2.0	98%
$ZnSO_4$	2.0	86%
$K_4Fe(CN)_6$	2.0	87%

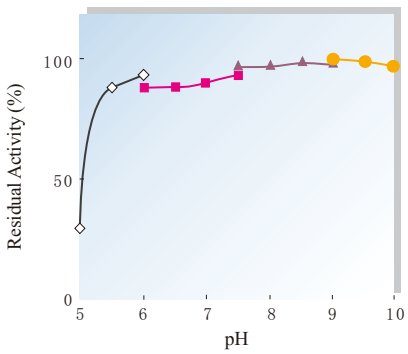
Chemical	Concn. (mM)	Residual activity
BME	2.0	124%
NEM	2.0	91%
EDTA	5.0	100%
NaN_3	20.0	100%
Proclin	0.045%	110%
Na-cholate	0.10%	100%
SDS	0.05%	0%
Triton X-100	0.10%	110%
Tween 20	0.10%	108%

Fig. 1 pH Activity



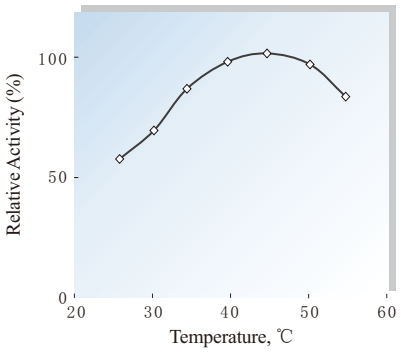
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris buffer
● : 50mM Glycine buffer

Fig. 2 pH Stability



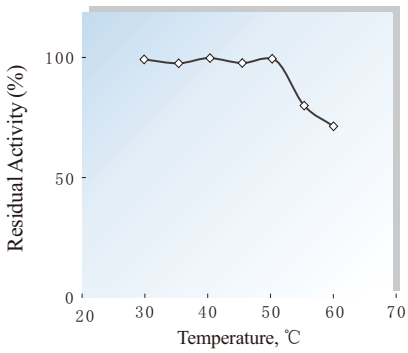
Treatment : 25℃, 24hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris buffer
● : 50mM glycine buffer

Fig. 3 Temperature activity



Buffer: 50mM Tris buffer , pH 8.0

Fig. 4 Thermal stability



Treatment: 50mM Tris buffer, pH 8.0, 30min

Glutamate Dehydrogenase

L-Glutamate:NAD^+ oxidoreductase

Reaction

L-Glutamate *α-Ketoglutarate*

Product description

Catalog No.:	SDZ500140
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.4.1.2
CAS Number:	9001-46-1
Storage temperature:	-20℃
Specific activity:	≥ 400U/mg protein
Unit definition:	One unit will convert one micromole of α-ketoglutarate to L-glutamate per min at pH 8.3 at 30℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	51kDa (SDS-PAGE)	
Isoelectric point:	5.6	
Michaelis constant:	9.5×10^{-3}M (NH_3)	
	5.0×10^{-3}M (α-Ketoglutarate)	
	8.4×10^{-5}M (NADH)	
Optimum pH:	8.0~9.0 (α-KG→L-Glu)	{Fig. 1}
Optimum temperature:	40℃~50℃	{Fig. 3}
pH Stability:	5.0~11.0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 60℃(pH 8.3, 10min)	{Fig. 4}
Inhibitors:	Fe^{3+},NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

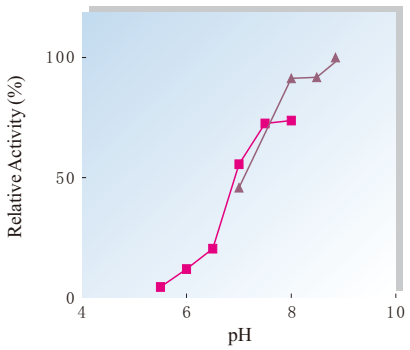
Effect of Various Chemicals on GLDH

[The enzyme dissolved in 100mM Tris-HCl buffer, pH 8.0 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	97%
$CoCl_2$	2.0	82%
$CuSO_4$	2.0	106%
$FeCl_3$	2.0	19%
$MgSO_4$	2.0	97%
$MnSO_4$	2.0	99%
$NiCl_2$	2.0	86%
$ZnSO_4$	2.0	86%
BME	2.0	106%

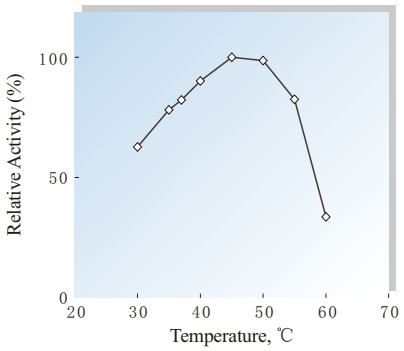
Chemical	Concn. (mM)	Residual activity
NEM	2.0	78%
EDTA	5.0	93%
NaN_3	20.0	98%
Proclin	0.045%	25%
Boric Acid-Borax	2.0	90%
Na-cholate	0.10%	104%
SDS	0.05%	3%
Triton X-100	0.10%	110%
Tween 20	0.10%	108%

Fig. 1 pH Activity



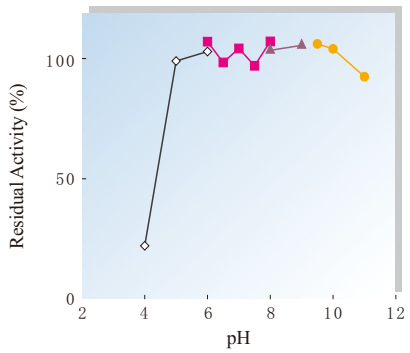
(α -Ketoglutarate → L-glutamate)
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer

Fig. 3 Temperature activity



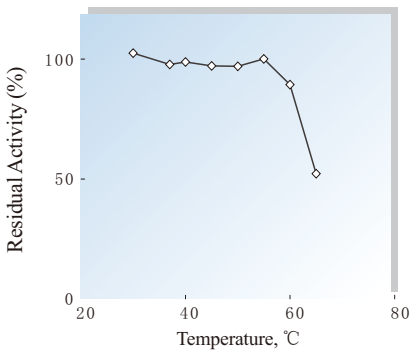
(α -Ketoglutarate → L-glutamate)
Buffer: 100mM Tris-HCl buffer , pH 8.3

Fig. 2 pH Stability



Treatment : 25℃,20hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM borate buffer

Fig. 4 Thermal stability



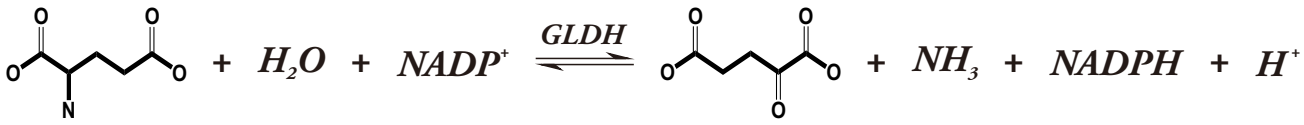
Treatment: 100mM Tris-HCl buffer , pH 8.3, 10min

Glutamate Dehydrogenase

(NADP-dependent)

L-Glutamate: oxidoreductase(deaminating)

Reaction



L-Glutamate *α-Ketoglutarate*

Product description

Catalog No.:	SDZ500142
Appearance:	Colorless transparent liquid
Source:	Microorganism
Enzyme Commission Number:	EC 1.4.1.4
CAS Number:	9029-12-3
Storage temperature:	2−8℃
Specific activity:	⩾ 400U/mg protein
Unit definition:	One unit will convert one micromole of α-keloglutarate to L-glutamate per min at pH 8.3 at 30℃.

Properties

Stability:	Stable at 2-8℃ for at least one year	
Molecular weight:	51kDa (SDS-PAGE)	
Isoelectric point:	4.6	
Michaelis constant:	1.7×10^{-3}M (NH_3)	
	1.1×10^{-3}M (α-Keloglutarate)	
	3.0×10^{-4}M (NADPH)	
Optimum pH:	8.3	{Fig. 1}
Optimum temperature:	55℃~60℃	{Fig. 3}
pH Stability:	6.0~9.5 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 60℃(pH7.4, 10min)	{Fig. 4}
Inhibitors:	Ca^{2+},Fe^{3+},$Mn^{2+}Zn^{2+}$,NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

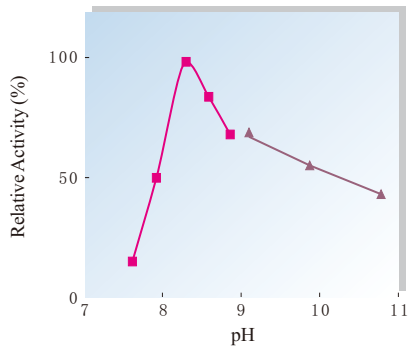
Effect of Various Chemicals on GLDH

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 8.0 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	14%
$CoCl_2$	2.0	99%
$CuSO_4$	2.0	96%
$FeCl_3$	2.0	54%
$MgSO_4$	2.0	109%
$MnSO_4$	2.0	41%
$NiCl_2$	2.0	97%
$ZnSO_4$	2.0	50%
BME	2.0	96%

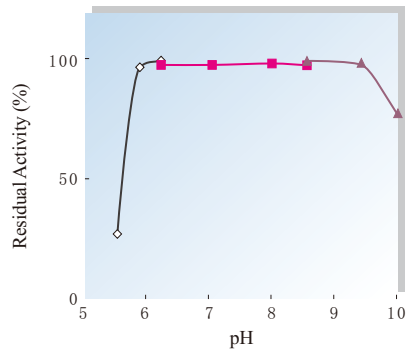
Chemical	Concn. (mM)	Residual activity
NEM	2.0	66%
EDTA	5.0	103%
NaN_3	20.0	98%
Proclin	0.045%	4%
Boric Acid-Borax	2.0	101%
Na-cholate	0.10%	99%
SDS	0.05%	5%
Triton X-100	0.10%	96%
Tween 20	0.10%	101%

Fig. 1 pH Activity



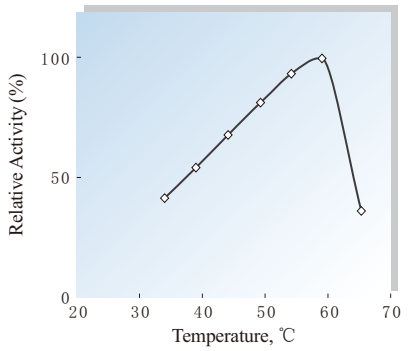
(α -Ketoglutarate → L-glutamate)
■ : 100mM Tris-HCl buffer
▲ : 100mM Glycine-NaOH buffer

Fig. 2 pH Stability



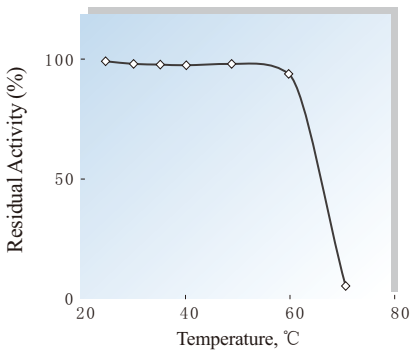
Treatment : 25℃,20hr
◇ : 100mM acetate buffer
■ : 100mM KH_2PO_4 buffer
▲ : 100mM Glycine-NaOH buffer

Fig. 3 Temperature activity



(α -Ketoglutarate → L-glutamate)
Buffer: 100mM Tris-HCl buffer , pH 8.3

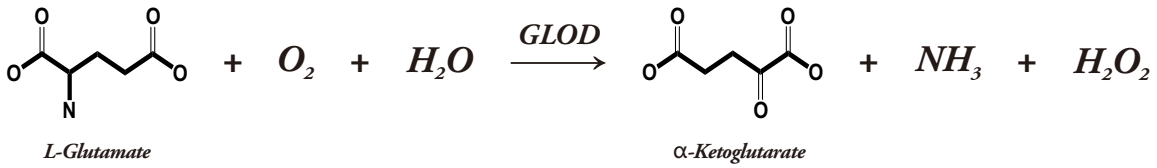
Fig. 4 Thermal stability



Treatment: 100mM Tris-HCl buffer , pH 7.4, 10min

Glutamate Oxidase

Reaction



Product description

Catalog No.:	SDZ500680
Appearance:	Yellow amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.4.3.11
CAS Number:	39346-34-4
Storage temperature:	−20℃
Specific activity:	≥ 40U/mg protein
Unit definition:	One unit will convert one micromole of L-glutamate to α-ketoglutarate per min at pH 6.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	77 kDa (SDS-PAGE)	
Isoelectric point:	5.6	
Michaelis constant:	2. 8×10^{-4}M (L-Glutamate)	
Optimum pH:	6.0~8.0	{Fig. 1}
Optimum temperature:	50~65℃	{Fig. 3}
pH Stability:	4.0~7.5 (25℃, 24hr)	{Fig. 2}
Thermal stability:	< 45℃ (pH 6.5, 30min)	{Fig. 4}
Inhibitors:	Ca^{2+},Co^{2+},Cu^{2+},Fe^{3+},Mn^{2+},$K_4Fe(CN)_6$,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

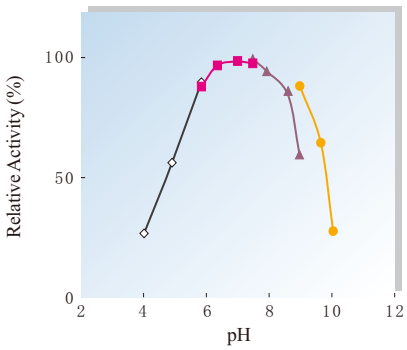
Effect of Various Chemicals on GLOD

[The enzyme dissolved in 20mM K-phosphate buffer, pH6.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	66%
$CoCl_2$	2.0	29%
$CuSO_4$	2.0	45%
$FeCl_3$	2.0	46%
$MgSO_4$	2.0	109%
$MnSO_4$	2.0	37%
$NiCl_2$	2.0	129%
$ZnSO_4$	2.0	104%
$K_4Fe(CN)_6$	2.0	14%

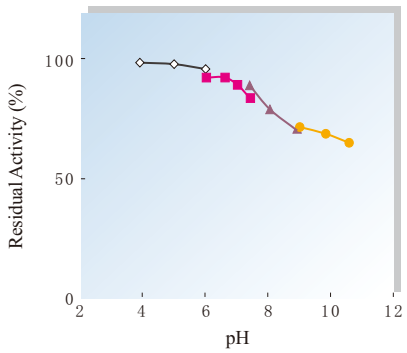
Chemical	Concn. (mM)	Residual activity
BME	2.0	101%
NEM	2.0	83%
EDTA	5.0	109%
NaN_3	20.0	98%
Proclin	0.045%	8%
Na-cholate	0.10%	115%
SDS	0.05%	0%
Triton X-100	0.10%	120%
Tween 20	0.10%	115%

Fig. 1 pH Activity



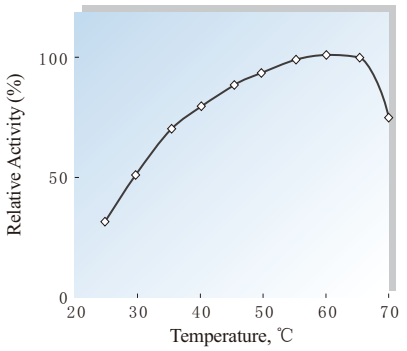
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM Glycine-NaOH buffer

Fig. 2 pH Stability



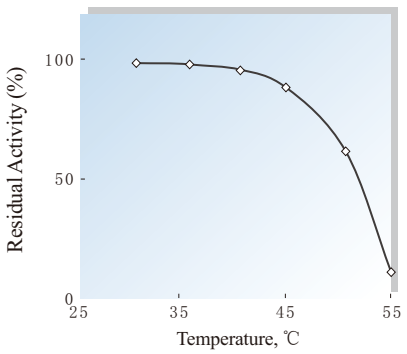
Treatment : 25℃,24hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM Glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 100mM K-phosphate buffer , pH 6.5

Fig. 4 Thermal stability



Treatment: 100mM K-phosphate buffer , pH 6.5, 30min

Glutaminase

Reaction

Glutamine *Glutamic acid*

Product description

Catalog No.:	SDZ500691
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.5.1.2
CAS Number:	9001-47-2
Storage temperature:	-20℃
Specific activity:	≥ 3000U/mg protein
Unit definition:	One unit will convert one micromole of L-glutamine to L-Glutamine per min at pH 5.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	33 kDa (SDS-PAGE)	
Isoelectric point:	4. 7	
Michaelis constant:	1.6×10^{-2} M (L-Glutamine)	
Optimum pH:	6.0	{Fig. 1}
Optimum temperature:	20~60℃	{Fig. 3}
pH Stability:	4.0~7.5 (37℃, 20hr)	{Fig. 2}
Thermal stability:	< 45℃ (pH 5.0, 10min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{2+},EDTA,Proclin,Na-cholate,SDS,Triton X-100	
Effect of various chemicals:		{Table 1}

Table 1.

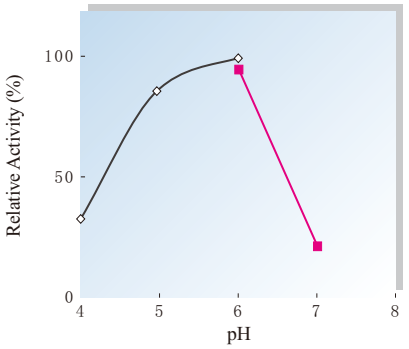
Effect of Various Chemicals on GLTA

[The enzyme dissolved in 50mM Na-acetate buffer, pH 5.0 (20U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	98%
$CoCl_2$	2.0	91%
$CuSO_4$	2.0	1%
$FeCl_3$	2.0	7%
$MgSO_4$	2.0	98%
$MnSO_4$	2.0	99%
$NiCl_2$	2.0	89%
$ZnSO_4$	2.0	92%
$K_4Fe(CN)_6$	2.0	91%

Chemical	Concn. (mM)	Residual activity
BME	2.0	105%
NEM	2.0	94%
EDTA	5.0	67%
NaN_3	20.0	97%
Proclin	0.045%	4%
Na-cholate	0.10%	2%
SDS	0.05%	1%
Triton X-100	0.10%	60%
Tween 20	0.10%	111%

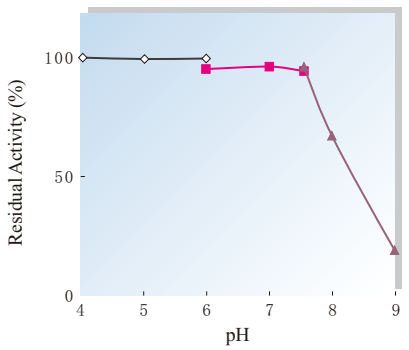
Fig. 1 pH Activity



◇ : 50mM acetate buffer

■ : 50mM phosphate buffer

Fig. 2 pH Stability



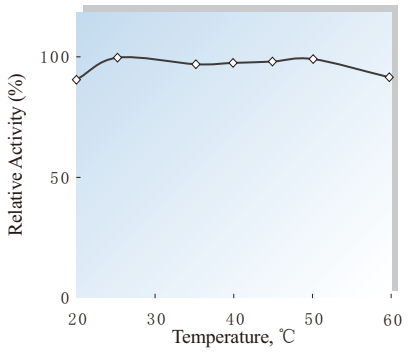
Treatment : 37℃,20hr

◇ : 50mM acetate buffer

■ : 50mM phosphate buffer

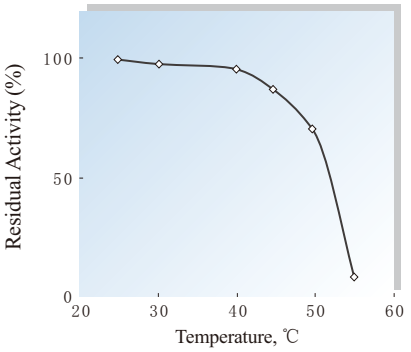
▲ : 50mM Tris-HCl buffer

Fig. 3 Temperature activity



Buffer: 50mM acetate buffer , pH5.0

Fig. 4 Thermal stability

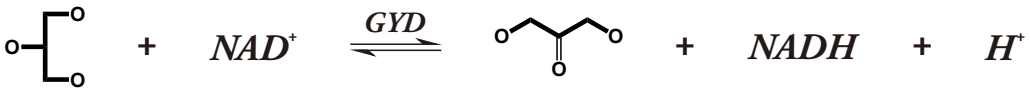


Treatment: 50mM K-phosphate buffer, pH5.0, 10min

Glycerol Dehydrogenase

Glycerol: NAD^+ 2-Oxidoreductase

Reaction



Glycerol　　Dihydroxyacetone

Product description

Catalog No.:	SDZ500670
Appearance:	Liquid
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.6
CAS Number:	9028-14-2
Storage temperature:	2–8℃
Specific activity:	≥ 150U/mg protein
Unit definition:	One unit causes the formation of one micromole of NADH per min at pH 10.0 at 25℃.

Properties

Stability:	Stable at 2-8℃ for at least one year	
Molecular weight:	41kDa (SDS-PAGE)	
Isoelectric point:	5.4	
Michaelis constant:	1.5×10^{-3}M(Glycerol) 2.7×10^{-3}M(NAD^+)	
Optimum pH:	10.0~12.0	{Fig. 1}
Optimum temperature:	50℃	{Fig. 3}
pH Stability:	8.5~11.0 (25℃,20hr)	{Fig. 2}
Thermal stability:	35℃~60℃ (pH 7.5, 15min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{3+},Mg^{2+},Ni^{2+},NEM,EDTA ,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

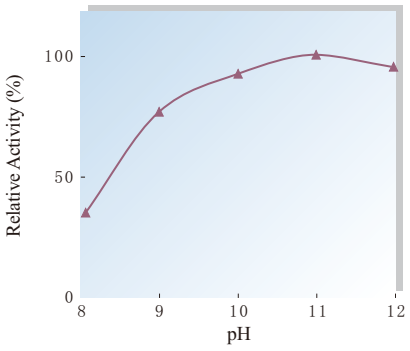
Effect of Various Chemicals on GYD

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 8.0 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	80%
$CoCl_2$	2.0	86%
$CuSO_4$	2.0	0%
$FeCl_3$	2.0	0%
$MgSO_4$	2.0	78%
$MnSO_4$	2.0	135%
$NiCl_2$	2.0	0%
$ZnSO_4$	2.0	100%
$K_4Fe(CN)_6$	2.0	89%

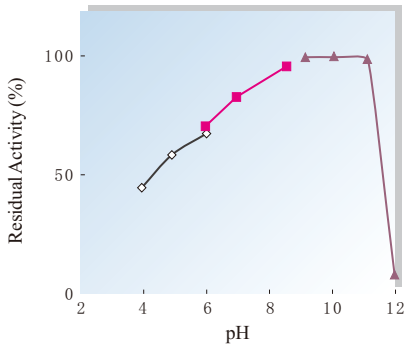
Chemical	Concn. (mM)	Residual activity
BME	2.0	90%
NEM	2.0	34%
EDTA	5.0	0%
NaN_3	20.0	84%
Proclin	0.045%	41%
Na-cholate	0.10%	92%
SDS	0.05%	0%
Triton X-100	0.10%	90%
Tween 20	0.10%	94%

Fig. 1 pH Activity



▲ : 100mM K_2CO_3-$NaHCO_3$ buffer

Fig. 2 pH Stability



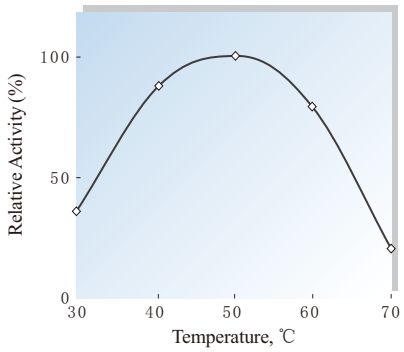
Treatment : 25℃,20hr

◇ : 50mM acetate buffer

■ : 50mM K-phosphate buffer

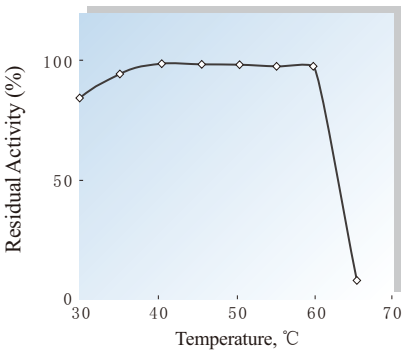
▲ : 50mM K_2CO_3-$NaHCO_3$ buffer

Fig. 3 Temperature activity



Buffer: 20mM K_2CO_3-$NaHCO_3$ buffer , pH 11.0

Fig. 4 Thermal stability

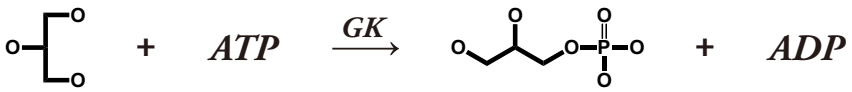


Treatment: 20mM K-phosphate buffer, pH 7.5, 15min

Glycerol Kinase

ATP:glycerol-3-phosphotransferase

Reaction



Glycerol *Glycerol-3-phosphate*

Product description

Catalog No.:	SDZ500190 SDZ500191
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 2.7.1.30
CAS Number:	9030-66-4
Storage temperature:	-20℃
Specific activity:	⩾ 180U/mg protein (SDZ500190) ⩾ 80U/mg protein (SDZ500191)
Unit definition:	One unit will convert one micromole of glycerol to glycerol-3-phos - phate per min at pH 7.9 at 37℃(SDZ500190)/25℃(SDZ500191).

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	55 kDa (SDS-PAGE)	
Isoelectric point:	5.1	
Michaelis constant:	3.8×10^{-5}M (Glycerol)	
Optimum pH:	8.0	{Fig. 1}
Optimum temperature:	70℃~80℃	{Fig. 3}
pH Stability:	4.0~10.0 (30℃, 20hr)	{Fig. 2}
Thermal stability:	< 65℃ (pH 7.5, 30min)	{Fig. 4}
Inhibitors:	Fe^{3+},Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

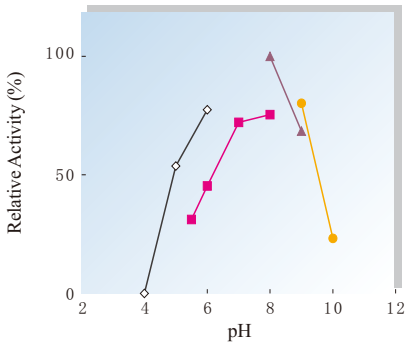
Effect of Various Chemicals on GK

[The enzyme dissolved in 100mM Gly-Gly buffer, pH 8.0 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	96%
$CoCl_2$	2.0	98%
$CuSO_4$	2.0	94%
$FeCl_3$	2.0	56%
$MgSO_4$	2.0	83%
$MnSO_4$	2.0	97%
$NiCl_2$	2.0	105%
$ZnSO_4$	2.0	98%
BME	2.0	94%

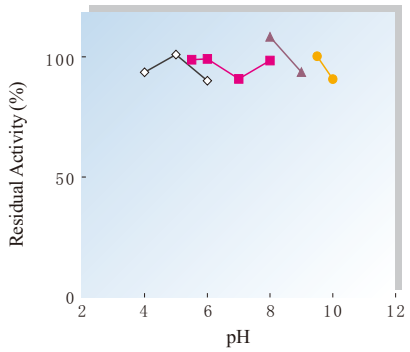
Chemical	Concn. (mM)	Residual activity
NEM	2.0	86%
EDTA	5.0	97%
NaN_3	20.0	101%
Proclin	0.045%	2%
Boric Acid-Borax	2.0	98%
Na-cholate	0.10%	102%
SDS	0.05%	1%
Triton X-100	0.10%	111%
Tween 20	0.10%	92%

Fig. 1 pH Activity



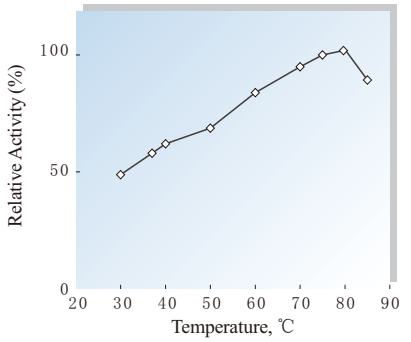
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM borate buffer

Fig. 2 pH Stability



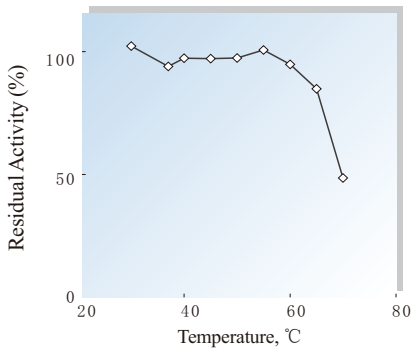
Treatment : 30℃,20hr
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM borate buffer

Fig. 3 Temperature activity



Buffer: 200mM HEPES buffer , pH 7.9

Fig. 4 Thermal stability

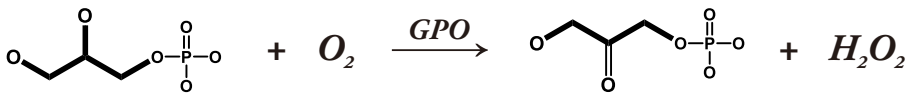


Treatment: 20mM K-phosphate buffer, pH 7.5, 30min

Glycerophosphate Oxidase

glycerol-3-phosphate:oxygen 2-oxidoreducase

Reaction



Glycerol-3-phosphate　　Dihydroxyacetone phosphate

Product description

Catalog No.:	SDZ500202
Appearance:	Yellowish amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.3.21
CAS Number:	9046-28-0
Storage temperature:	-20℃
Specific activity:	≥ 40U/mg protein
Unit definition:	One unit oxidate one micromole of L-α-glycerophosphate per min at pH 6.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	67 kDa (SDS-PAGE)	
Isoelectric point:	4.6	
Michaelis constant:	2.5×10^{-3}M(L-α-Glycerolphosphate)	
Optimum pH:	5.5~6.5	{Fig. 1}
Optimum temperature:	45℃~55℃	{Fig. 3}
pH Stability:	5.0~8.5 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 40℃ (pH 6.5, 15min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{2+},Zn^{2+},EDTA,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

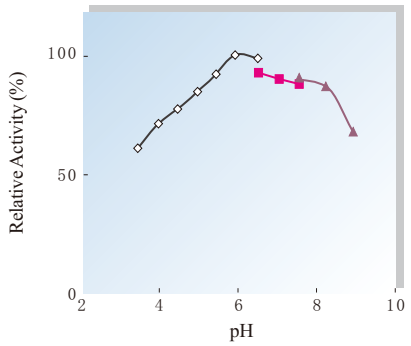
Effect of Various Chemicals on GPO

[The enzyme dissolved in 20mM PIPES buffer, pH 6.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	100%
$CoCl_2$	2.0	97%
$CuSO_4$	2.0	15%
$FeCl_3$	2.0	40%
$MgSO_4$	2.0	95%
$MnSO_4$	2.0	94%
NaCl	0.5M	100%
$NiCl_2$	2.0	100%
$ZnSO_4$	2.0	55%
$K_4Fe(CN)_6$	2.0	82%

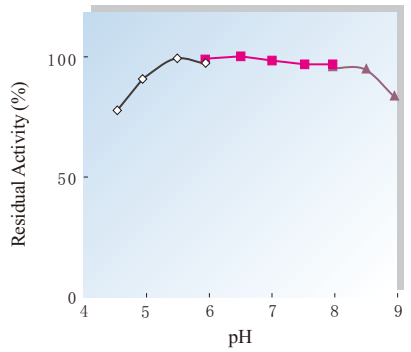
Chemical	Concn. (mM)	Residual activity
BME	2.0	100%
NEM	2.0	105%
EDTA	5.0	84%
NaN_3	20.0	99%
Proclin	0.045%	0%
Na-cholate	0.10%	105%
SDS	0.05%	0%
Triton X-100	0.10%	103%
Tween 20	0.10%	110%
FAD	0.1	109%

Fig. 1 pH Activity



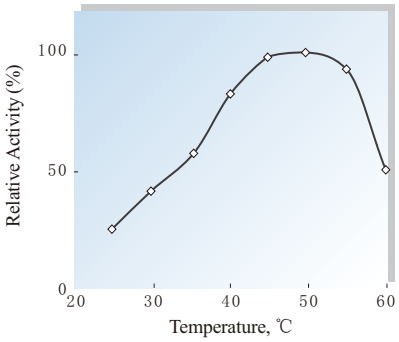
◇: 100mM MES buffer
■: 100mM PIPES buffer
▲: 100mM Tris-HCl buffer

Fig. 2 pH Stability



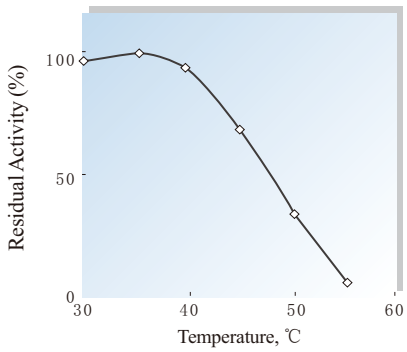
Treatment : 25℃,20hr
◇: 100mM acetate buffer
■: 100mM K-phosphate buffer
▲: 100mM Tris-HCl buffer

Fig. 3 Temperature activity



Buffer: 200mM PIPES buffer , pH 6.5

Fig. 4 Thermal stability

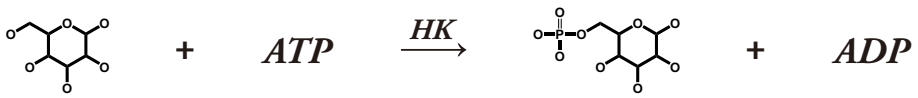


Treatment: 100mM PIPES buffer,
pH 6.5, 15min

Hexokinase

ATP:D-Hexose 6-phosphotransferase

Reaction



D-Hexose *D-Hexose-6-phosphate*

Product description

Catalog No.:	SDZ500330
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 2.7.1.1
CAS Number:	9001-51-8
Storage temperature:	-20℃
Specific activity:	⩾ 500U/mg protein
Unit definition:	One unit will convert one micromole of D-glucose to D-glucose-6-phosphate per min at pH 8.0 at 30℃

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	55kDa (SDS-PAGE)	
Isoelectric point:	5.5	
Michaelis constant:	2.9×10^{-3} M (Glucose) 1.5×10^{-3} M (ATP)	
Optimum pH:	9.0	{Fig. 1}
Optimum temperature:	50℃~55℃	{Fig. 3}
pH Stability:	5.0~7.5 (25℃, 17hr)	{Fig. 2}
Thermal stability:	< 40℃ (pH 8.0, 30min)	{Fig. 4}
Inhibitors:	Co^{2+},Cu^{2+},Fe^{3+},Ni^{2+},Zn^{2+},NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

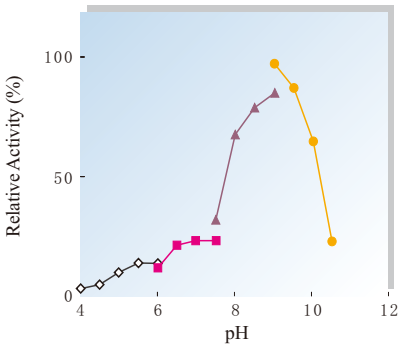
Effect of Various Chemicals on HK

[The enzyme dissolved in 50mM Tris-HCl buffer with 0.1% BSA,pH 7.5 (10U/ml) was incubated with each chemical at 25℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	98%
$CoCl_2$	2.0	21%
$CuSO_4$	2.0	3%
$FeCl_3$	2.0	44%
$MgSO_4$	2.0	95%
$MnSO_4$	2.0	96%
$NiCl_2$	2.0	45%
$ZnSO_4$	2.0	11%
$K_4Fe(CN)_6$	2.0	95%

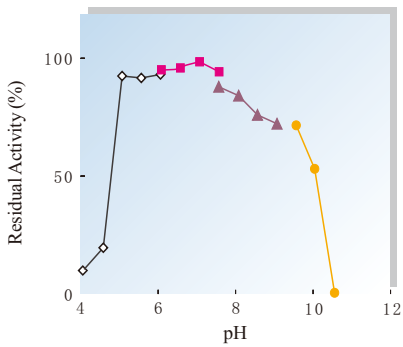
Chemical	Concn. (mM)	Residual activity
BME	2.0	99%
NEM	2.0	14%
EDTA	5.0	104%
NaN_3	20.0	98%
Proclin	0.045%	5%
Na-cholate	0.10%	99%
SDS	0.05%	73%
Triton X-100	0.10%	99%
Tween 20	0.10%	100%

Fig. 1 pH Activity



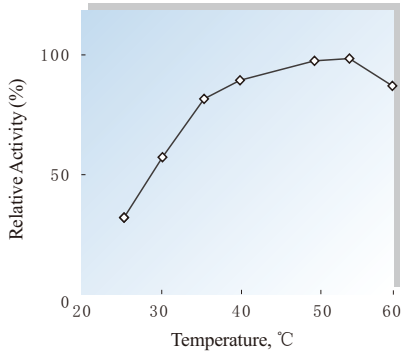
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM Glycine-NaOH buffer

Fig. 2 pH Stability



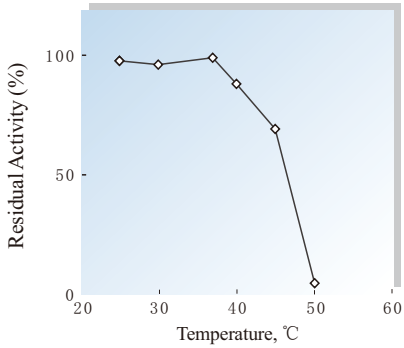
Treatment : 25℃,17hr
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM Glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 50mM K-phosphate buffer , pH 8.0

Fig. 4 Thermal stability

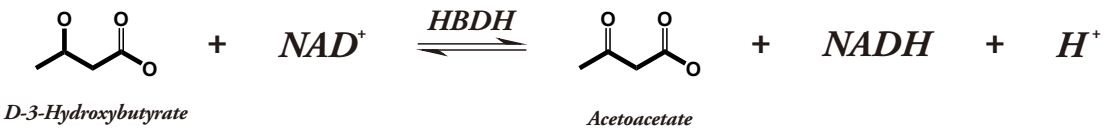


Treatment: 50mM K-phosphate buffer, pH 8.0, 30min

D-3-Hydroxybutyrate Dehydrogenase

D-3-Hydroxybutyrate:NAD^+ oxidoreductase

Reaction



D-3-Hydroxybutyrate *Acetoacetate*

Product description

Catalog No.:	SDZ500311
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.30
CAS Number:	9028-38-0
Storage temperature:	-20℃
Specific activity:	≥500U/mg protein
Unit definition:	One unit converts one micromole of 3-hydroxybutylate to acetoacetate per min at pH 8.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	27kDa (SDS-PAGE)	
Isoelectric point:	7. 2	
Michaelis constant:	2.1×10^{-3}M (D-3-Hydroxybutyrate)	
Optimum pH:	7.0~9.0	{Fig. 1}
Optimum temperature:	60℃	{Fig. 3}
pH Stability:	6.0~11.0 (25℃, 24hr)	{Fig. 2}
Thermal stability:	< 37℃ (pH 8.5, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{3+}, Zn^{2+},NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

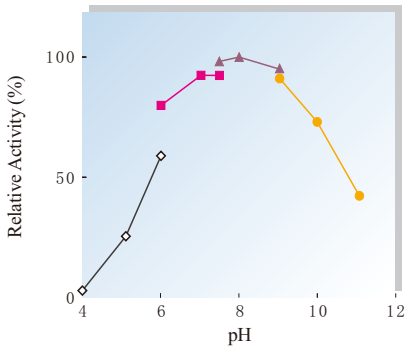
Effect of Various Chemicals on HBDH

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 8.5 (20U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	105%
$CoCl_2$	2.0	98%
$CuSO_4$	2.0	59%
$FeCl_3$	2.0	65%
$MgSO_4$	2.0	103%
$MnSO_4$	2.0	96%
$NiCl_2$	2.0	102%
$ZnSO_4$	2.0	48%
BME	2.0	103%

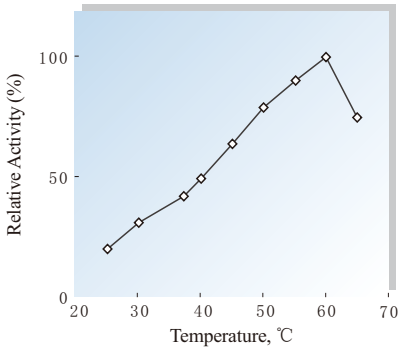
Chemical	Concn. (mM)	Residual activity
NEM	2.0	0%
EDTA	5.0	104%
NaN_3	20.0	105%
Proclin	0.045%	0%
Boric Acid-Borax	2.0	106%
Na-cholate	0.10%	119%
SDS	0.05%	0%
Triton X-100	0.10%	113%
Tween 20	0.10%	112%

Fig. 1 pH Activity



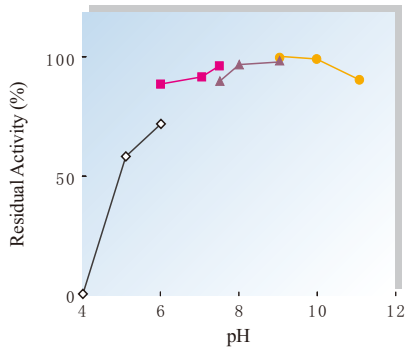
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM Glycine-NaOH buffer

Fig. 3 Temperature activity



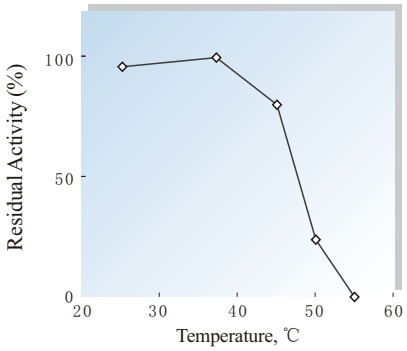
Buffer: 100mM Tris-HCl buffer, pH 8.5

Fig. 2 pH Stability



Treatment : 25℃,24hr
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM Glycine-NaOH buffer

Fig. 4 Thermal stability

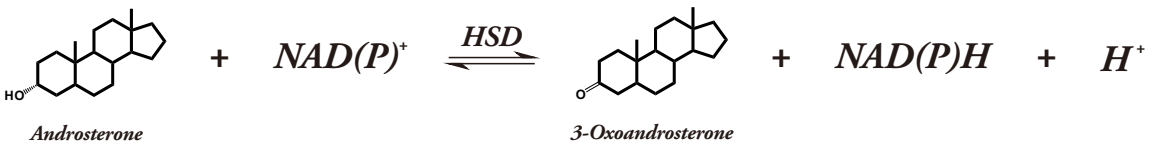


Treatment: 100mM Tris-HCl buffer, 0.1% BSA,pH 8.5, 30min

3α-Hydroxysteroid Dehydrogenase

3α-Hydroxysteroid:NAD(P)$^+$ oxidoreductase

Reaction



Androsterone *3-Oxoandrosterone*

Product description

Catalog No.:	SDZ500171
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.50
CAS Number:	9028-56-2
Storage temperature:	-20℃
Specific activity:	≥ 90U/mg protein
Unit definition:	One unit will oxidate one micromole of androsterone per min at pH 8.25 at 25℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	28 kDa (SDS-PAGE)	
Isoelectric point:	6.4	
Michaelis constant:	3.0×10^{-5}M (Androsterone) 6.0×10^{-6}M (NAD^+)	
Optimum pH:	10.5	{Fig. 1}
Optimum temperature:	50℃~60℃	{Fig. 3}
pH Stability:	4.5~10.5 (30℃, 20hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 7.2, 20min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{3+},Zn^{2+},NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

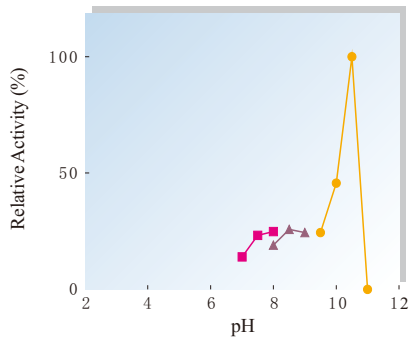
Effect of Various Chemicals on HSD

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	97%
$CoCl_2$	2.0	93%
$CuSO_4$	2.0	0%
$FeCl_3$	2.0	44%
$MgSO_4$	2.0	96%
$MnSO_4$	2.0	92%
$NiCl_2$	2.0	94%
$ZnSO_4$	2.0	25%

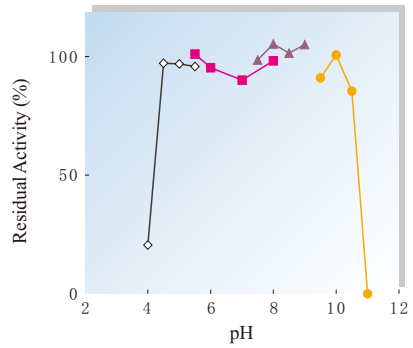
Chemical	Concn. (mM)	Residual activity
BME	2.0	94%
NEM	2.0	0%
EDTA	5.0	99%
NaN_3	20.0	99%
Proclin	0.045%	0%
Na-cholate	0.10%	100%
SDS	0.05%	0%
Triton X-100	0.10%	102%
Tween 20	0.10%	106%

Fig. 1 pH Activity



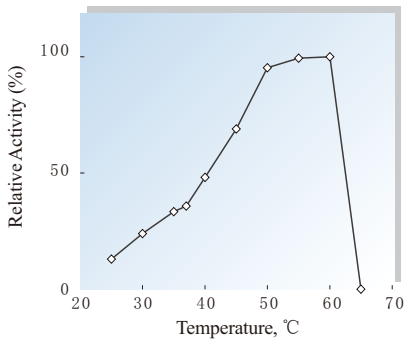
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM Glycine-NaOH buffer

Fig. 2 pH Stability



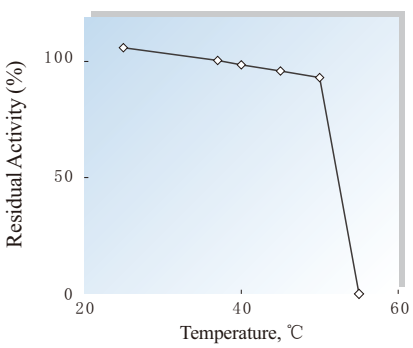
Treatment : 30℃,20hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM Glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 100mM sodium pyrophosphate buffer , pH 8.9

Fig. 4 Thermal stability

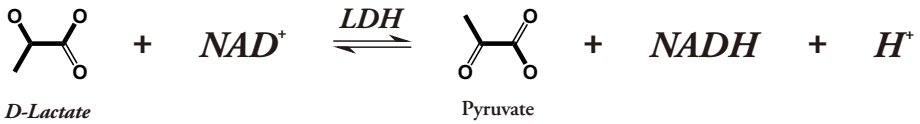


Treatment: 30mM K-phosphate buffer, pH 7.2, 20min

D-Lactate Dehydrogenase

(R)-Lactate:NAD^+ Oxidoreductase

Reaction



D-Lactate Pyruvate

Product description

Catalog No.:	SDZ500161
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.28
CAS Number:	9028-36-8
Storage temperature:	-20℃
Specific activity:	≥ 400U/mg protein
Unit definition:	One unit will convert one micromole of pyruvate to D-lactate per min at pH 7.4 at 25℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	38 kDa (SDS-PAGE)	
Isoelectric point:	5.8	
Michaelis constant:	5.4×10^{-4} M (Pyruvate)	
Optimum pH:	6.5~7.0	{Fig. 1}
Optimum temperature:	30℃	{Fig. 3}
pH Stability:	5.0~8.0 (25℃, 48hr)	{Fig. 2}
Thermal stability:	< 45℃ (pH 7.0, 15min)	{Fig. 4}
Inhibitors:	Co^{2+} ,Cu^{2+} ,Zn^{2+},SDS	
Effect of various chemicals:		{Table 1}

Table 1.

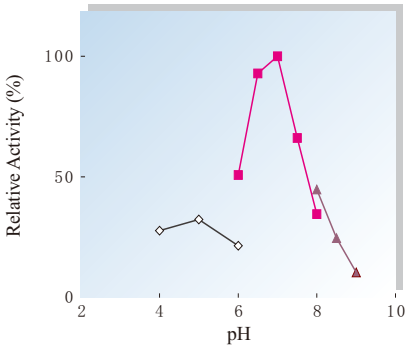
Effect of Various Chemicals on D-LDH

[The enzyme dissolved in 100mM K-phosphate buffer, pH 7.4 (28U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	94%
$CoCl_2$	2.0	12%
$CuSO_4$	2.0	77%
$FeCl_3$	2.0	89%
$MgSO_4$	2.0	97%
$MnSO_4$	2.0	95%
$NiCl_2$	2.0	87%
$ZnSO_4$	2.0	75%
BME	2.0	96%

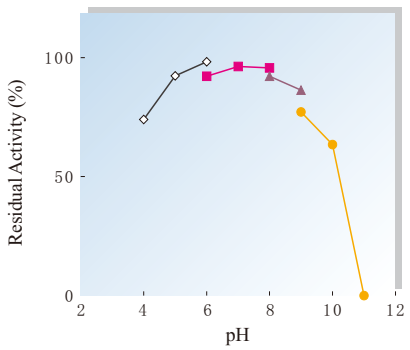
Chemical	Concn. (mM)	Residual activity
NEM	2.0	90%
EDTA	5.0	91%
NaN_3	20.0	92%
Proclin	0.045%	98%
Na-cholate	0.10%	101%
SDS	0.05%	3%
Triton X-100	0.10%	102%
Tween 20	0.10%	97%
Boric Acid-Borax	2.0	94%

Fig. 1 pH Activity



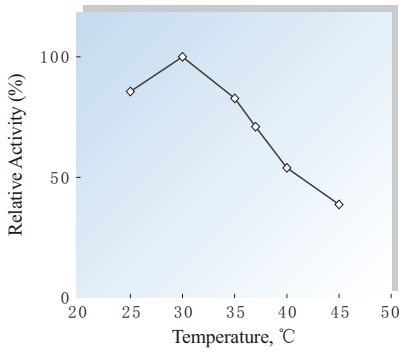
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer

Fig. 2 pH Stability



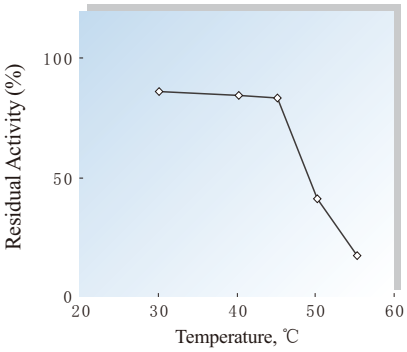
Treatment : 25℃,48hr
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM borate buffer

Fig. 3 Temperature activity



Buffer: 100mM K-phosphate buffer , pH 7.4

Fig. 4 Thermal stability

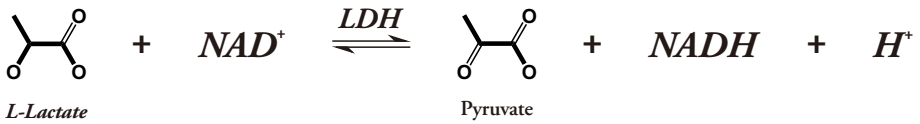


Treatment: 100mM K-phosphate buffer, pH 7.0, 15min

L-Lactate Dehydrogenase

(S)-Lactate:NAD^+ Oxidoreductase

Reaction



L-Lactate Pyruvate

Product description

Catalog No.:	SDZ500162
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.27
CAS Number:	9001-60-9
Storage temperature:	-20℃
Specific activity:	≥ 300U/mg protein
Unit definition:	One unit will convert one micromole of pyruvate to L-lactate per min at pH 7.4 at 25℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	38 kDa (SDS-PAGE)	
Isoelectric point:	6.2	
Michaelis constant:	1.3×10^{-4} M (Pyruvate) 4.0×10^{-6}M (NADH)	
Optimum pH:	6.5~7.5	{Fig. 1}
Optimum temperature:	40℃~50℃	{Fig. 3}
pH Stability:	4.5~10.0 (37℃, 1hr)	{Fig. 2}
Thermal stability:	< 55℃ (pH 7.4, 15min)	{Fig. 4}
Inhibitors:	Co^{2+},Cu^{2+},Fe^{3+},Zn^{2+},NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

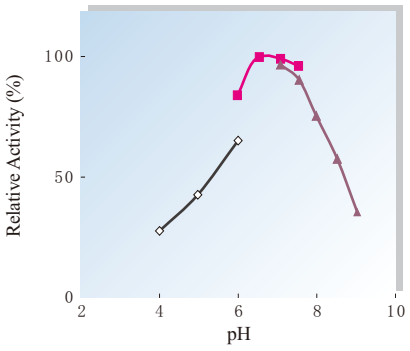
Effect of Various Chemicals on L-LDH

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (20U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	101%
$CoCl_2$	2.0	50%
$CuSO_4$	2.0	0%
$FeCl_3$	2.0	27%
$MgSO_4$	2.0	94%
$MnSO_4$	2.0	96%
$NiCl_2$	2.0	78%
$ZnSO_4$	2.0	0%
$K_4Fe(CN)_6$	2.0	98%

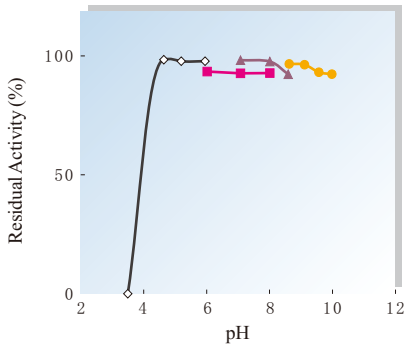
Chemical	Concn. (mM)	Residual activity
BME	2.0	98%
NEM	2.0	79%
EDTA	5.0	102%
NaN_3	20.0	101%
Proclin	0.045%	58%
Na-cholate	0.10%	109%
SDS	0.05%	0%
Triton X-100	0.10%	113%
Tween 20	0.10%	115%

Fig. 1 pH Activity



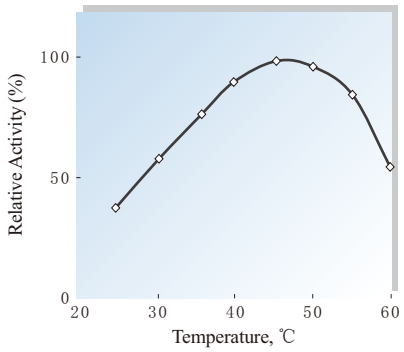
◇ : 100mM citrate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer

Fig. 2 pH Stability



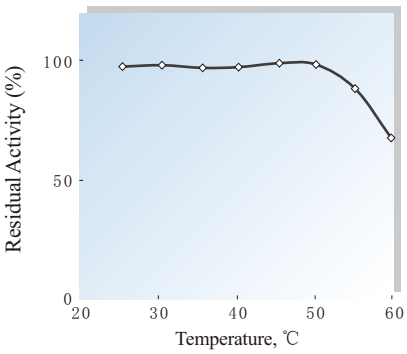
Treatment : 37℃,1hr
◇ : 100mM citrate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM glycine buffer

Fig. 3 Temperature activity



Buffer: 100mM K-phosphate buffer , pH 7.4

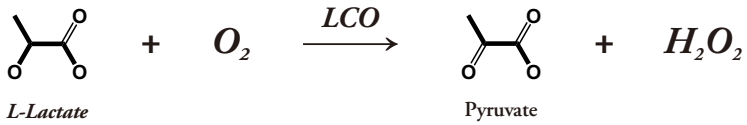
Fig. 4 Thermal stability



Treatment: 100mM K-phosphate buffer, pH 7.4, 15min

Lactate Oxidase

Reaction



Product description

Catalog No.:	SDZ500570
Appearance:	Yellow amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.3.2
CAS Number:	9028-72-2
Storage temperature:	-20℃
Specific activity:	≥100U/mg protein
Unit definition:	One unit will convert one micromole of L-lactate to pyruvate per min at pH 7.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight	40kDa (SDS-PAGE)	
Isoelectric point:	5.2	
Michaelis constant:	1.1×10^{-3}M (L-Lactate)	
Optimum pH:	6.5~8.0	{Fig. 1}
Optimum temperature:	37℃~40℃	{Fig. 3}
pH Stability:	5.0~10. 0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 7.0, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{3+}, Zn^{2+}, SDS	
Effect of various chemicals:		{Table 1}

Table 1.

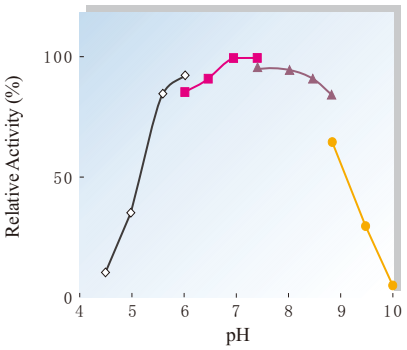
Effect of Various Chemicals on LCO

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (50U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	110%
$CoCl_2$	2.0	98%
$CuSO_4$	2.0	23%
$FeCl_3$	2.0	52%
$MgSO_4$	2.0	100%
$MnSO_4$	2.0	97%
$NiCl_2$	2.0	89%
$ZnSO_4$	2.0	76%
$K_4Fe(CN)_6$	2.0	100%

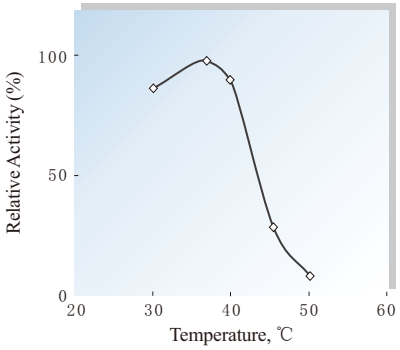
Chemical	Concn. (mM)	Residual activity
BME	2.0	98%
NEM	2.0	91%
EDTA	5.0	97%
NaN_3	20.0	97%
Proclin	0.045%	94%
Na-cholate	0.10%	105%
SDS	0.05%	0%
Triton X-100	0.10%	99%
Tween 20	0.10%	98%

Fig. 1 pH Activity



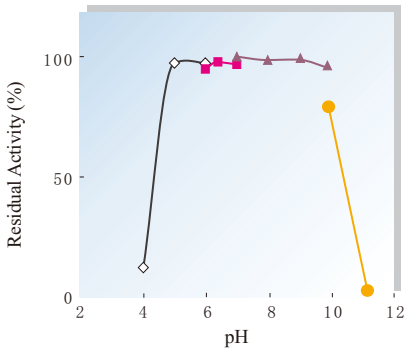
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris buffer
● : 50mM Glycine-NaOH buffer

Fig. 3 Temperature activity



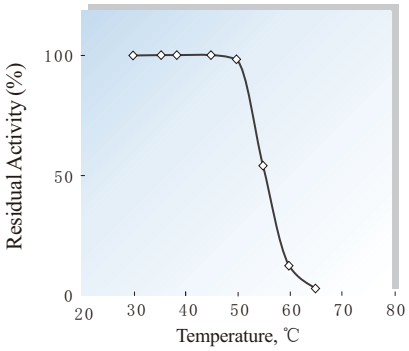
Buffer: 20mM K-phosphate buffer , pH 7.0

Fig. 2 pH Stability



Treatment : 25℃, 20hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris buffer
● : 50mM glycine buffer

Fig. 4 Thermal stability

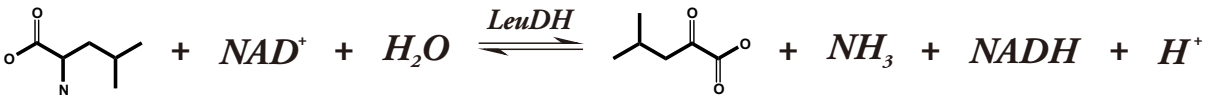


Treatment: 20mM K-phosphate buffer, pH 7.0, 30min

Leucine Dehydrogenase

L-Leucine: NAD^+ oxidoreducatase (deaminating)

Reaction



L-Leucine *α-Ketoisocaproate*

Product description

Catalog No.:	SDZ500280
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.4.1.9
CAS Number:	9082-71-7
Storage temperature:	-20℃
Specific activity:	≥25U/mg protein
Unit definition:	One unit will convert one micromole of L-leucine to α-ketoisocaproate per minute at pH 10.5 at 37℃

Properties

Molecular weight:	43 kDa (SDS-PAGE)	
Isoelectric point:	6.6	
Michaelis constant:	2.6×10^{-4} M (NAD^+)	
	2.0×10^{-3}M(L-Leucine)	
	6.8×10^{-4}M(α-Ketoisocaproate)	
	4.2×10^{-2}M (NH_3)	
	2.3×10^{-4} M (NADH)	
Optimum pH:	11.0(L-Leu→α-K I C)	{Fig. 1}
	8.5(α-K I C→ L-Leu)	
Optimum temperature:	50℃~60℃(L-Leu →α-K I C)	{Fig. 3}
	60℃~70℃(α-K I C→ L-Leu)	
pH Stability:	6.0~11.0 (25℃, 15hr)	{Fig. 2}
Thermal stability:	< 55℃ (pH 7.0, 20min)	{Fig. 4}
Inhibitors:	Fe^{3+},NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

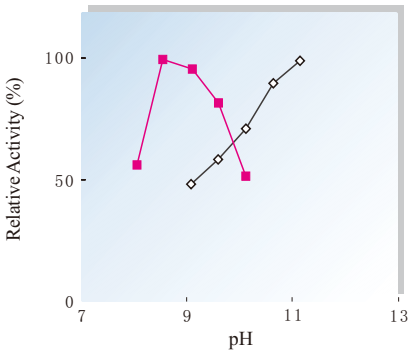
Effect of Various Chemicals on LeuDH

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (3U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	100%
$CoCl_2$	2.0	109%
$CuSO_4$	2.0	108%
$FeCl_3$	2.0	75%
$MgSO_4$	2.0	97%
$MnSO_4$	2.0	96%
$NiCl_2$	2.0	110%
$ZnSO_4$	2.0	110%

Chemical	Concn. (mM)	Residual activity
BME	2.0	97%
NEM	2.0	75%
EDTA	5.0	99%
Proclin	0.045%	37%
NaN_3	20.0	100%
Na-cholate	0.10%	108%
SDS	0. 05%	36%
Triton X-100	0.10%	112%
Tween 20	0.10%	110%

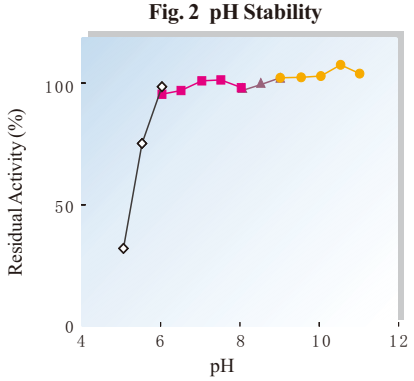
Fig. 1 pH Activity



◇: L-Leu→ α -K I C 100mM glycine-NaOH buffer

■: α -K I C→L-Leu 100mM Borate buffer

Fig. 2 pH Stability



Treatment : 25℃,15hr

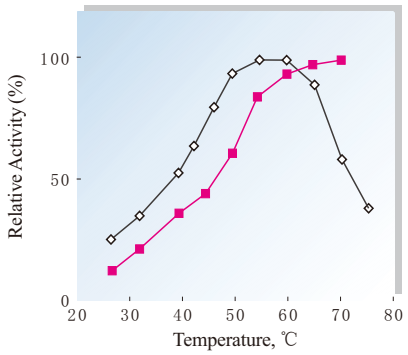
◇: 100mM acetate buffer

■: 100mM phosphate buffer

▲: 100mM Tris-HCl buffer

●: 100mM Glycine-NaOH buffer

Fig. 3 Temperature activity



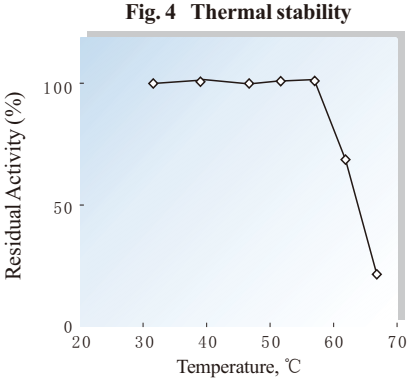
◇: L-Leu → α -K I C

Buffer: 200mM glycine-KOH buffer, pH 10.5

■: α -K I C→L-Leu

Buffer: 100mM Borate buffer, pH 8.5

Fig. 4 Thermal stability

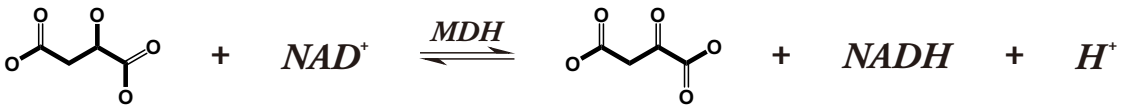


Treatment: 50mM phosphate buffer, pH 7.0, 20min

Malate Dehydrogenase

L-Malate:NAD^+ oxidoreductase

Reaction



L-Malate *Oxaloacetate*

Product description

Catalog No.:	SDZ500150
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.37
CAS Number:	9001-64-3
Storage temperature:	-20℃
Specific activity:	≥ 200U/mg protein
Unit definition:	One unit will convert one micromole of oxaloacetate to L-malate per min at pH 7.5 at 30℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	34 kDa (SDS-PAGE)	
Isoelectric point:	4.9	
Michaelis constant:	2.5×10^{-5}M (NADH)	
	2.0×10^{-5}M (Oxaloacetate)	
Optimum pH:	9.0	{Fig. 1}
Optimum temperature:	55℃	{Fig. 3}
pH Stability:	3.5~8.5(25℃, 20hr)	{Fig. 2}
Thermal stability:	< 60℃ (pH7.5, 15min)	{Fig. 4}
Inhibitors:	Cu^{2+},Ni^{2+},SDS	
Effect of various chemicals:		{Table 1}

Table 1.

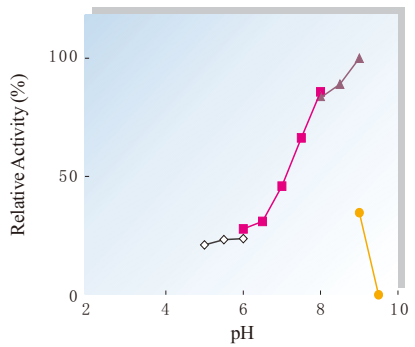
Effect of Various Chemicals on MDH

[The enzyme dissolved in 100mM Tris-HCl buffer, pH 7.5 (17U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	103%
$CoCl_2$	2.0	98%
$CuSO_4$	2.0	73%
$FeCl_3$	2.0	105%
$MgSO_4$	2.0	104%
$MnSO_4$	2.0	104%
$NiCl_2$	2.0	37%
$ZnSO_4$	2.0	111%
$K_4Fe(CN)_6$	2.0	91%

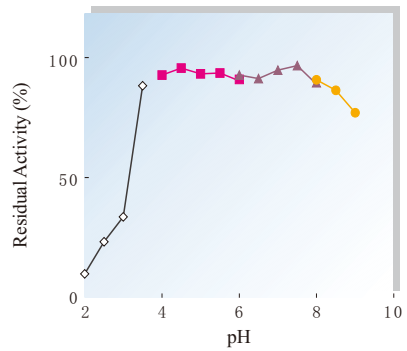
Chemical	Concn. (mM)	Residual activity
BME	2.0	111%
NEM	2.0	156%
EDTA	5.0	103%
NaN_3	20.0	108%
Proclin	0.045%	110%
Boric Acid-Borax	2.0	110%
Na-cholate	0.10%	117%
SDS	0.05%	3%
Triton X-100	0.10%	118%
Tween 20	0.10%	116%

Fig. 1 pH Activity



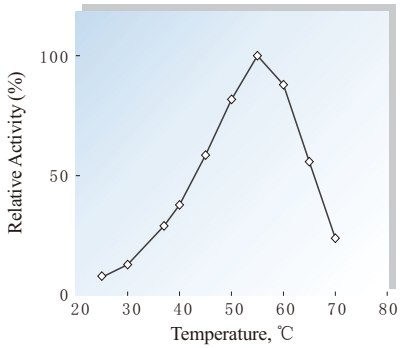
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM borate buffer

Fig. 2 pH Stability



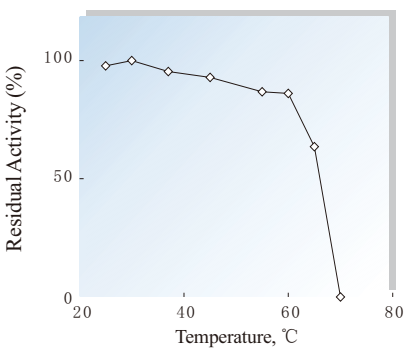
Treatment : 25℃,20hr
◇ : 50mM Glycine-HCl buffer
■ : 50mM acetate buffer
▲ : 50mM phosphate buffer
● : 50mM Tris-HCl buffer

Fig. 3 Temperature activity



Buffer: 50mM K-phosphate buffer , pH 7.5

Fig. 4 Thermal stability



Treatment: 50mM K-phosphate buffer, pH 7.5, 15min

Neuraminidase

Reaction

N-Acetylneuraminy-R *N-Actylneuraminate*

Product description

Catalog No.:	SDZ500380
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.2.1.18
CAS Number:	9001-67-6
Storage temperature:	-20℃
Specific activity:	≥ 300U/mg protein
Unit definition:	One unit will convert one micromole of 3'-sialyllactose to N-actylneuraminate per min at pH 6.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	52 kDa (SDS-PAGE)	
Isoelectric point:	5.9	
Michaelis constant:	1.02×10^{-3}M (3'-Sialyllactose)	
Optimum pH:	5.0 ~6.0	{Fig. 1}
Optimum temperature:	50℃	{Fig. 3}
pH Stability:	4.0~10.0 (25℃, 25hr)	{Fig. 2}
Thermal stability:	< 45℃ (pH 7.5, 10min)	{Fig. 4}
Inhibitors:	Fe^{3+},Zn^{2+},NEM,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

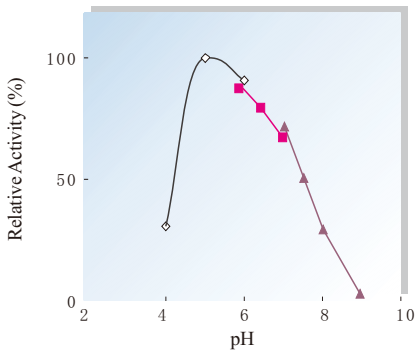
Effect of Various Chemicals on NRH

[The enzyme dissolved in 100mM PIPES buffer, pH 6.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	98%
$CoCl_2$	2.0	105%
$CuSO_4$	2.0	114%
$FeCl_3$	2.0	72%
$MgSO_4$	2.0	103%
$MnSO_4$	2.0	98%
$NiCl_2$	2.0	98%
$ZnSO_4$	2.0	75%

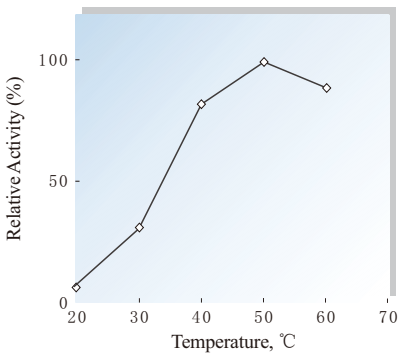
Chemical	Concn. (mM)	Residual activity
BME	2.0	103%
NEM	2.0	42%
EDTA	5.0	105%
NaN_3	20.0	98%
Proclin	0.045%	109%
Na-cholate	0.10%	109%
SDS	0.05%	12%
Triton X-100	0.10%	111%
Tween 20	0.10%	119%

Fig. 1 pH Activity



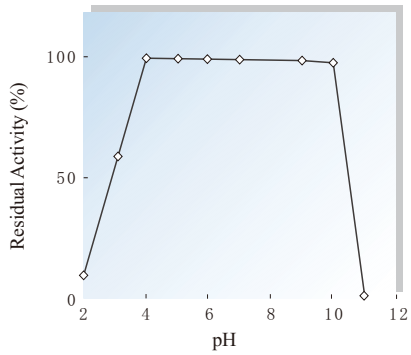
◇: 50mM acetate buffer
■: 50mM PIPES buffer
▲: 50mM Tris-HCl buffer

Fig. 3 Temperature activity



Buffer: 50mM Tris-HCl buffer , pH 7.5

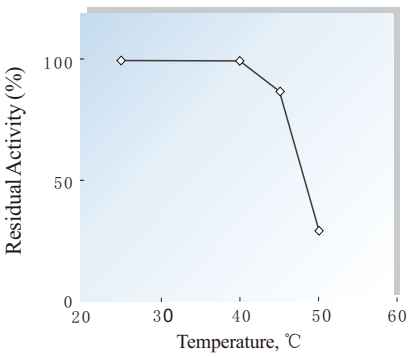
Fig. 2 pH Stability



Treatment : 25℃,25hr

◇ : Britton-Robinson buffer with 0.1%BSA

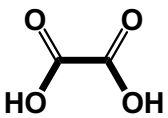
Fig. 4 Thermal stability



Treatment: 100mM PIPES with 0.125% BSA, pH 7.5,10min

Oxalate Oxidase

Reaction



Oxalate

$$+ \quad O_2 \xrightarrow{OXO} 2CO_2 + H_2O_2$$

Product description

Catalog No.:	SDZ500710
Appearance:	White amrophous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.2.3.4
CAS Number:	9031-79-2
Storage temperature:	-20℃
Specific activity:	⩾ 0.5U/mg protein
Unit definition:	One unit will oxidize one micromole of oxalate per min at pH 5.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	26kDa (SDS-PAGE)	
Isoelectric point:	6.6	
Michaelis constant:	2.2×10^{-2} M (Oxalate)	
Optimum pH:	3.0~5.0	{Fig. 1}
Optimum temperature:	45-50℃	{Fig. 3}
pH Stability:	3.0~5.5 (28℃, 20hr)	{Fig. 2}
Thermal stability:	< 45℃ (pH 5.0, 10min)	{Fig. 4}
Inhibitors:	Cu^{2+},Fe^{2+},Zn^{2+}, $K_4Fe(CN)_6$,Na-cholate,SDS, Tween20	
Effect of various chemicals:		{Table 1}

Table 1.

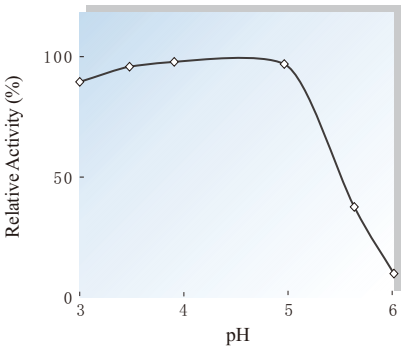
Effect of Various Chemicals on OXO

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.0 (1U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	97%
$CoCl_2$	2.0	81%
$CuSO_4$	2.0	1%
$FeCl_3$	2.0	57%
$MgSO_4$	2.0	98%
$MnSO_4$	2.0	92%
$NiCl_2$	2.0	88%
$ZnSO_4$	2.0	12%
$K_4Fe(CN)_6$	2.0	8%

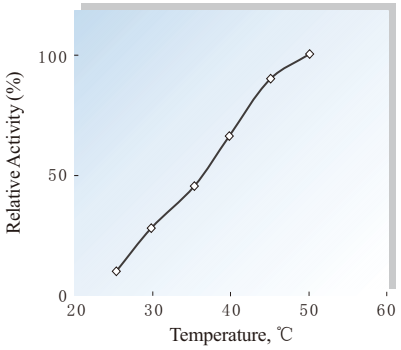
Chemical	Concn. (mM)	Residual activity
BME	2.0	106%
NEM	2.0	83%
EDTA	5.0	90%
NaN_3	20.0	85%
Proclin	0.045%	106%
Na-cholate	0.10%	12%
SDS	0.05%	33%
Triton X-100	0.10%	92%
Tween 20	0.10%	71%

Fig. 1 pH Activity



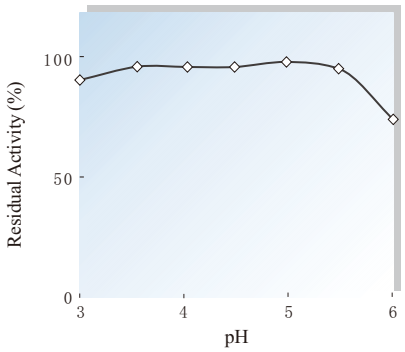
◇ : 50mM succinic acid buffer

Fig. 3 Temperature activity



Buffer: 50mM succinic acid buffer , pH 5.0

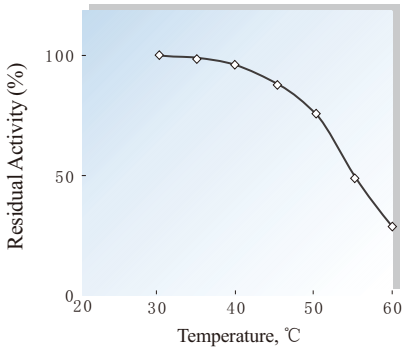
Fig. 2 pH Stability



Treatment : 28℃, 20hr

◇ : 50mM succinic acid buffer

Fig. 4 Thermal stability



Treatment: 50mM succinic acid buffer, pH 5.0, 10min

Peroxidase

Reaction

$$Donor + H_2O_2 \xrightarrow{POD} Oxidized\ donor + 2H_2O$$

Product description

Catalog No.:	SDZ500510(RZ≥3. 0) SDZ500511(RZ≥2. 0)
Appearance:	Reddish-brown amorphous powder
Source:	Horseradish
Enzyme Commission Number:	EC 1.11.1.7
CAS Number:	9003-99-0
Storage temperature:	-20℃
Activity:	≥250 Purpurogallin U/mg solid(SDZ500510) ≥180 Purpurogallin U/mg solid(SDZ500511)
Unit definition:	One unit will form 1.0 milligram of purpurogallin from pyrogallol in 20 second at pH 6.0 at 20℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	~40 kDa (SDS-PAGE)	
Isoelectric point:	7.2	
Optimum pH:	6.0~7.0	{Fig. 1}
Optimum temperature:	45℃~50℃	{Fig. 3}
pH Stability:	5.0~10.0 (30℃, 16hr)	{Fig. 2}
Thermal stability:	< 60℃ (pH 6.0, 15min)	{Fig. 4}
Inhibitors:		
Effect of various chemicals:		{Table 1}

Table 1.

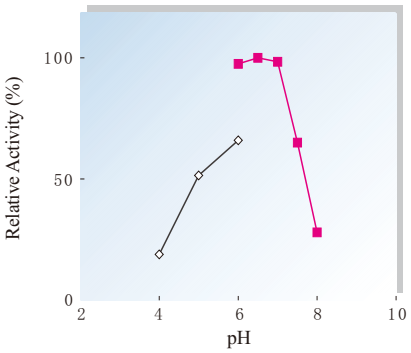
Effect of Various Chemicals on POD

[The enzyme dissolved in 100mM Tris-HCl buffer, pH 7.5 (50U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	106%
$CoCl_2$	2.0	117%
$CuSO_4$	2.0	109%
$FeCl_3$	2.0	105%
$MgSO_4$	2.0	112%
$MnSO_4$	2.0	111%
$NiCl_2$	2.0	109%
$ZnSO_4$	2.0	103%
BME	2.0	107%

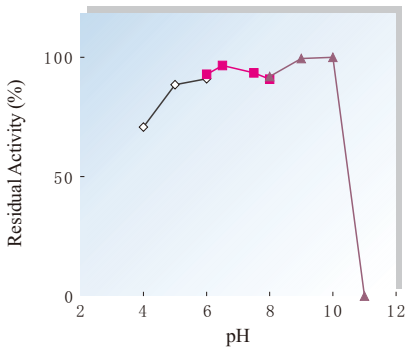
Chemical	Concn. (mM)	Residual activity
NEM	2.0	109%
EDTA	5.0	103%
NaN_3	20.0	83%
Proclin	0.045%	113%
Boric Acid-Borax	2.0	109%
Na-cholate	0.10%	117%
SDS	0.05%	108%
Triton X-100	0.10%	119%
Tween 20	0.10%	115%

Fig. 1 pH Activity



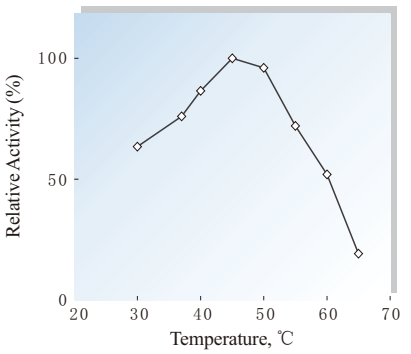
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer

Fig. 2 pH Stability



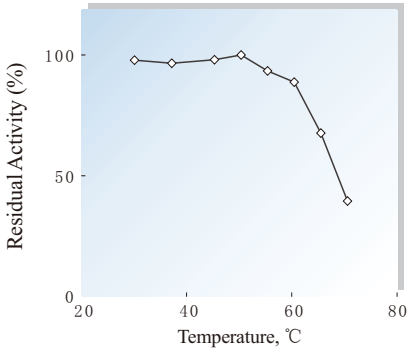
Treatment : 30℃,16hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer

Fig. 3 Temperature activity



Buffer: 100mM K-phosphate buffer , pH 6.0

Fig. 4 Thermal stability



Treatment: 100mM K-phosphate buffer, pH 6.0, 15min

Peroxidase

Recombinant

Reaction

$$Donor + H_2O_2 \xrightarrow{POD} Oxidized\ donor + 2H_2O$$

Product description

Catalog No.:	SDZ500512
Appearance:	Reddish-brown amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.11.1.7
CAS Number:	9003-99-0
Storage temperature:	-20℃
Activity:	≥150 Purpurogallin U/mg solid
Unit definition:	One unit will form 1.0 milligram of purpurogallin from pyrogallol in 20 second at pH 6.0 at 20℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	~40 kDa (SDS-PAGE)	
Optimum pH:	7.0~8.0	
Optimum temperature:	50℃~80℃	{Fig. 1}
pH Stability:	4.0~10.0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 65℃ (pH 6.0, 10min)	{Fig. 3}
Inhibitors:	Zn^{2+},Na-cholate	
Effect of various chemicals:		{Table 1}

Table 1.

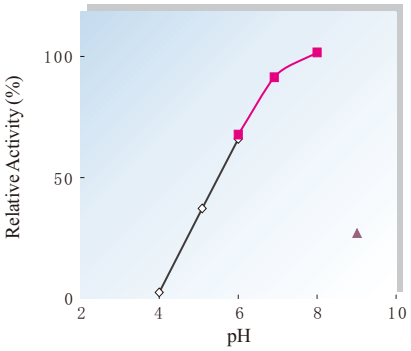
Effect of Various Chemicals on rPOD

[The enzyme dissolved in 100mM Tris-HCl buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	106%
$CoCl_2$	2.0	98%
$CuSO_4$	2.0	106%
$FeCl_3$	2.0	98%
$MgSO_4$	2.0	103%
$MnSO_4$	2.0	93%
$NiCl_2$	2.0	98%
$ZnSO_4$	2.0	10%
$K_4Fe(CN)_6$	2.0	101%

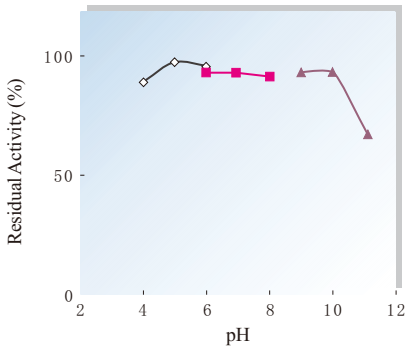
Chemical	Concn. (mM)	Residual activity
BME	2.0	95%
NEM	2.0	99%
EDTA	5.0	94%
NaN_3	20.0	100%
Proclin	0.045%	109%
Na-cholate	0.10%	78%
SDS	0.05%	106%
Triton X-100	0.10%	128%
Tween 20	0.10%	118%

Fig. 1 pH Activity



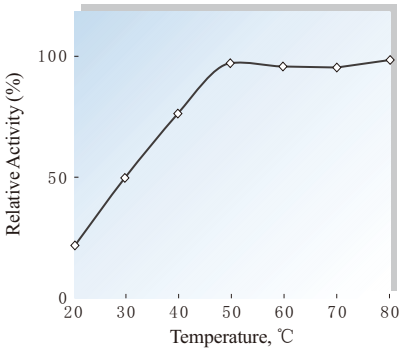
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM borate buffer

Fig. 2 pH Stability



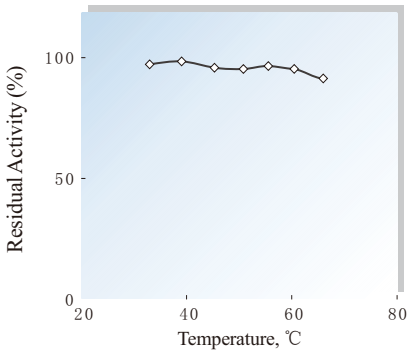
Treatment : 25℃,20hr
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM borate buffer

Fig. 3 Temperature activity



Buffer: 100mM K-phosphate buffer , pH 6.0

Fig. 4 Thermal stability

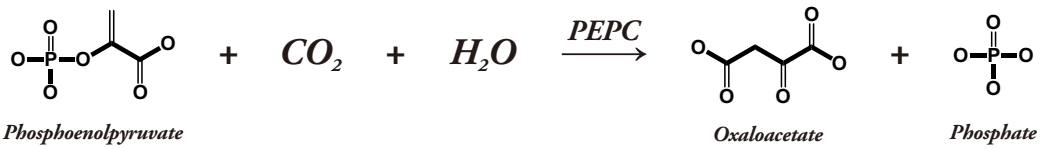


Treatment: 50mM K-phosphate buffer, pH 6.0, 10min

Phosphoenolpyruvate Carboxylase

Orthophosphate:oxaloacetate carboxy-lyase(Phosphorylating)

Reaction



Phosphoenolpyruvate *Oxaloacetate* *Phosphate*

Product description

Catalog No.:	SDZ500080
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 4.1.1.31
CAS Number:	9067-77-0
Storage temperature:	-20℃
Specific activity:	≥ 80U/mg protein
Unit definition:	One unit will convert one micromole of phosphoenolpyruvate to oxaloacetate per min at pH 8.0 at 30℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	105 kDa (SDS-PAGE)	
Isoelectric point:	6.4	
Michaelis constant:	3.5×10^{-4} (Phosphoenol Pyruvate)	
Optimum pH:	6.0~8.0	{Fig. 1}
Optimum temperature:	60℃~65℃	{Fig. 3}
pH Stability:	5.0~7.0 (25℃, 24hr)	{Fig. 2}
Thermal stability:	< 40℃ (pH 7.0, 15min)	{Fig. 4}
Inhibitors:	Zn^{2+},NEM,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

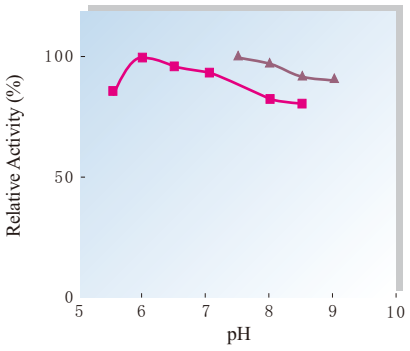
Effect of Various Chemicals on PEPC

[The enzyme dissolved in 100mM Tris-HCl buffer, pH 7.5 (20U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	99%
$CoCl_2$	2.0	108%
$CuSO_4$	2.0	94%
$FeCl_3$	2.0	110%
$MgSO_4$	2.0	102%
$MnSO_4$	2.0	109%
$NiCl_2$	2.0	125%
$ZnSO_4$	2.0	70%

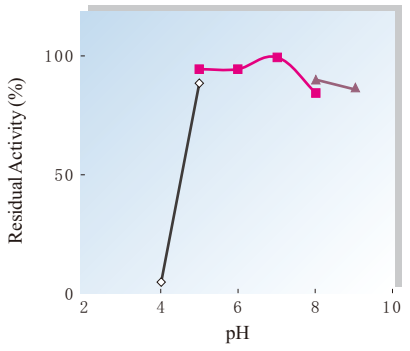
Chemical	Concn. (mM)	Residual activity
BME	2.0	101%
NEM	2.0	48%
EDTA	5.0	100%
NaN_3	20.0	100%
Na-cholate	0.10%	106%
SDS	0.05%	0%
Triton X-100	0.10%	112%
Tween 20	0.10%	116%

Fig. 1 pH Activity



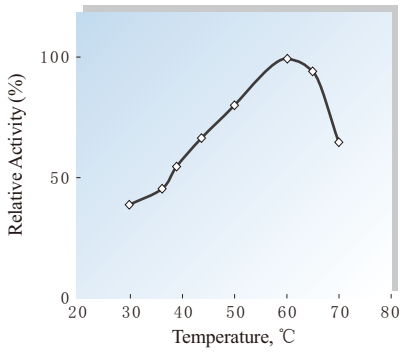
■ : 50mM MES buffer
▲ : 50mM Tris-HCl buffer

Fig. 2 pH Stability



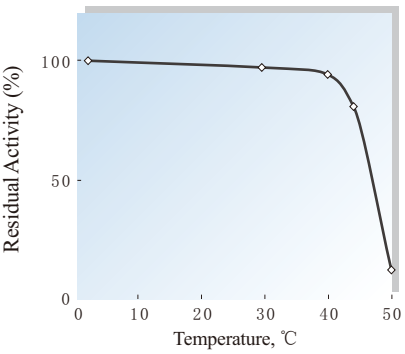
Treatment : 25℃,24hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer

Fig. 3 Temperature activity



Buffer: 20mM K-phosphate buffer , pH 7.0

Fig. 4 Thermal stability

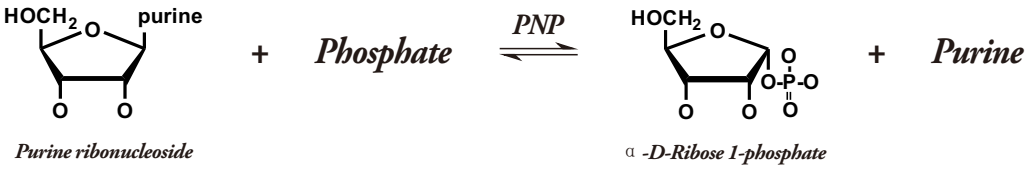


Treatment: 20mM K-phosphate buffer, pH 7.0, 15min

Purine-Nucleoside Phosphorylase

Purine-nucleoside: orthophosphate ribosyltransferase

Reaction



Purine ribonucleoside

α *-D-Ribose 1-phosphate*

Product description

Catalog No.:	SDZ500040
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 2.4.2.1
CAS Number:	9030-21-1
Storage temperature:	-20℃
Specific activity:	≥ 200U/mg protein
Unit definition:	One unit will cause the phosphorolysis of one micromole of inosine to hypoxanthine and ribose 1-phosphate per min at pH 7.7 at 37℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	32 kDa (SDS-PAGE)	
Isoelectric point:	6.0	
Michaelis constant:	2.2×10^{-4}M (Inosine)	
Optimum pH:	7.5~ 8.0	{Fig. 1}
Optimum temperature:	60℃	{Fig. 3}
pH Stability:	6.0~9.0 (30℃, 16hr)	{Fig. 2}
Thermal stability:	< 55℃ (pH 7.7, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

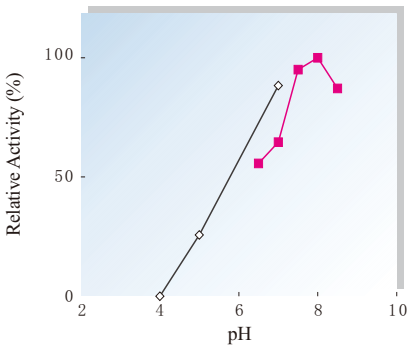
Effect of Various Chemicals on PNP

[The enzyme dissolved in 50mM K-phosphate buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	98%
$CoCl_2$	2.0	84%
$CuSO_4$	2.0	25%
$FeCl_3$	2.0	83%
$MgSO_4$	2.0	103%
$MnSO_4$	2.0	100%
$NiCl_2$	2.0	94%
$ZnSO_4$	2.0	93%

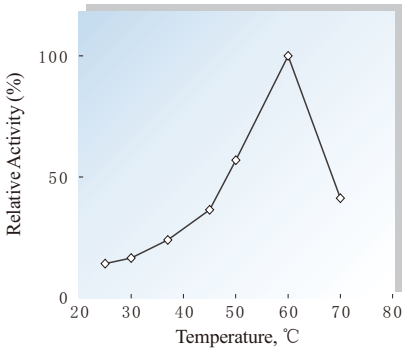
Chemical	Concn. (mM)	Residual activity
BME	2.0	100%
NEM	2.0	6%
EDTA	5.0	97%
NaN_3	20.0	99%
Proclin	0.045%	12%
Na-cholate	0.10%	104%
SDS	0.05%	78%
Triton X-100	0.10%	107%
Tween 20	0.10%	112%

Fig. 1 pH Activity



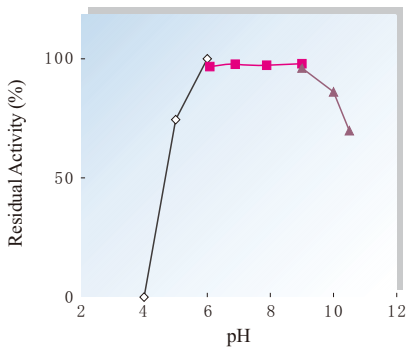
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer

Fig. 3 Temperature activity



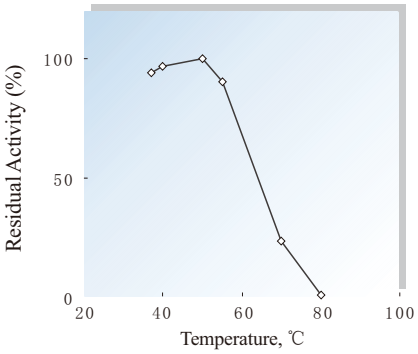
Buffer: 50mM K-phosphate buffer , pH 7.7

Fig. 2 pH Stability



Treatment : 30℃,16hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM borate buffer

Fig. 4 Thermal stability

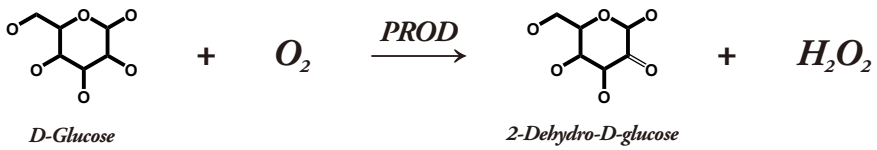


Treatment: 50mM K-phosphate buffer, pH 7.7, 30min

Pyranose Oxidase

pyranose:oxygen 2-oxidoreductase

Reaction



D-Glucose *2-Dehydro-D-glucose*

Product description

Catalog No.:	SDZ500431
Appearance:	Yellow liquid
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.3.10
CAS Number:	37250-80-9
Storage temperature:	2−8℃
Activity:	≥900U/ml
Unit definition:	One unit will convert one micromole of D-glucose to 2-dehydro -D-glucose per min at pH 7.0 at 37℃.

Properties

Stability:	Stable at 2-8℃ for at least one year	
Molecular weight:	70kDa (SDS-PAGE)	
Isoelectric point:	5.9	
Michaelis constant:	8.6×10^{-3}M (1.5-Anhydroglucitol) 7.12×10^{-4}M (D-Glucose)	
Optimum pH:	6.0~7.5	{Fig. 1}
Optimum temperature:	55℃~65℃	{Fig. 3}
pH Stability:	4.0~7.5 (5℃, 25hr)	{Fig. 2}
Thermal stability:	35℃~55℃ (pH 7.0, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+}	
Effect of various chemicals:		{Table 1}

Table 1.

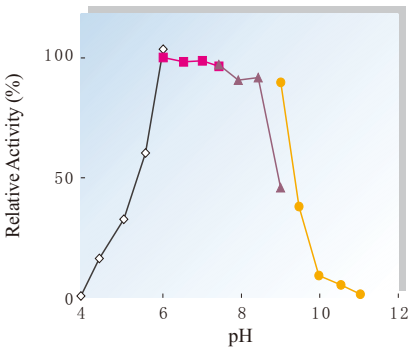
Effect of Various Chemicals on PROD

[The enzyme dissolved in 0.1M Tris-HCl buffer, pH 7.0 (5.2U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	102%
$CoCl_2$	2.0	101%
$CuSO_4$	2.0	76%
$FeCl_3$	2.0	100%
$MgSO_4$	2.0	103%
$MnSO_4$	2.0	102%
$NiCl_2$	2.0	101%
$ZnSO_4$	2.0	105%
BME	2.0	100%

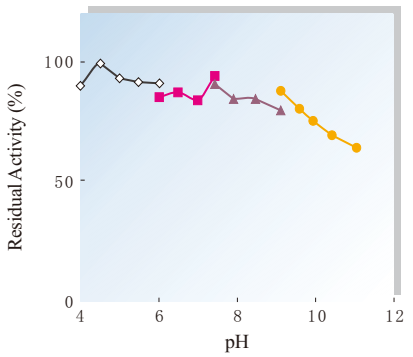
Chemical	Concn. (mM)	Residual activity
NEM	2.0	91%
NaN_3	20.0	101%
EDTA	5.0	102%
Proclin	0.045%	99%
Boric Acid-Borax	2.0	92%
Na-cholate	0.10%	99%
SDS	0.05%	93%
Triton X-100	0.10%	106%
Tween 20	0.10%	112%

Fig. 1 pH Activity



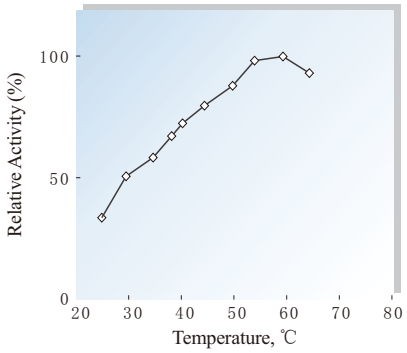
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM glycine buffer

Fig. 2 pH Stability



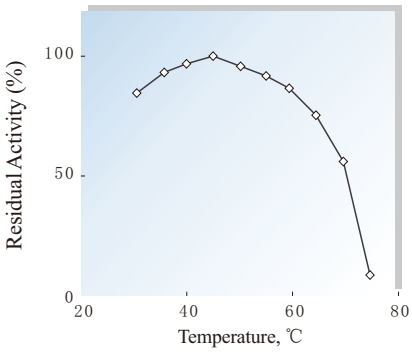
Treatment : 25℃,20hr
◇: 50mM acetate buffer
■: 50mM phosphate buffer
▲: 50mM Tris-HCl buffer
●: 50mM Glycine buffer

Fig. 3 Temperature activity



Buffer: 100mM Tris-HCl buffer , pH 7.0

Fig. 4 Thermal stability



Treatment: 100mM Tris-HCl buffer, pH 7.0, 30min

Pyruvate Kinase

ATP:pyruvate 2-O-phosphotransferase

Reaction

Pyruvate *Phosphoenolpyruvate*

Product description

Catalog No.:	SDZ500250
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 2.7.1.40
CAS Number:	9001-59-6
Storage temperature:	-20℃
Specific activity:	≥ 300U/mg protein
Unit definition:	One unit will convert one micromole of phosphoenolpyruvate(PEP) to pyruvate per min at pH 7.2 at 30℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	68 kDa (SDS-PAGE)	
Isoelectric point:	5.2	
Michaelis constant:	1.1×10^{-3}M (ADP) 2.2×10^{-3}M (PEP)	
Optimum pH:	7.5	{Fig. 1}
Optimum temperature:	65℃	{Fig. 3}
pH Stability:	5.0~10.0 (37℃, 20hr)	{Fig. 2}
Thermal stability:	< 60℃ (pH 8.5, 20min)	{Fig. 4}
Inhibitors:	Ca^{2+},Co^{2+},Cu^{2+},Fe^{3+},Mn^{2+},Ni^{2+}, NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

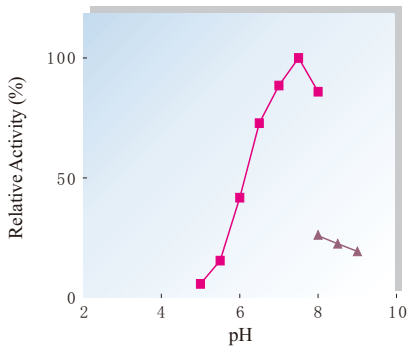
Effect of Various Chemicals on PK

[The enzyme dissolved in 50mM imidazole buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	73%
$CoCl_2$	2.0	55%
$CuSO_4$	2.0	65%
$FeCl_3$	2.0	12%
$MgSO_4$	2.0	95%
$MnSO_4$	2.0	77%
$NiCl_2$	2.0	77%
$ZnSO_4$	2.0	113%

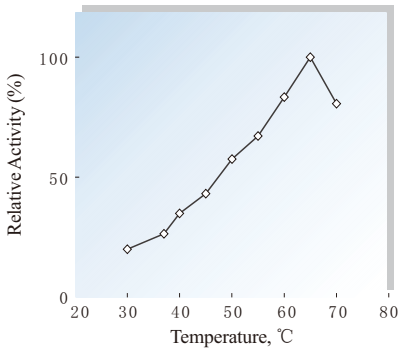
Chemical	Concn. (mM)	Residual activity
BME	2.0	103%
NEM	2.0	69%
EDTA	5.0	91%
NaN_3	20.0	103%
Proclin	0.045%	73%
Na-cholate	0.10%	122%
SDS	0.05%	14%
Triton X-100	0.10%	125%
Tween 20	0.10%	105%

Fig. 1 pH Activity



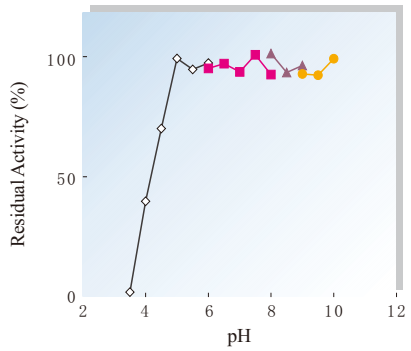
■ : 75mM imidazol-HCl buffer
▲ : 50mM Tris-HCl buffer

Fig. 3 Temperature activity



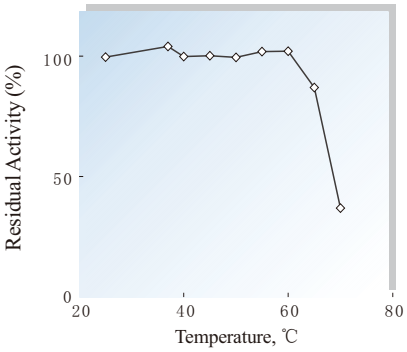
Buffer: 75mM imidazol-HCl buffer , pH 7.2

Fig. 2 pH Stability



Treatment : 37℃,20hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM glycine-NaOH buffer

Fig. 4 Thermal stability

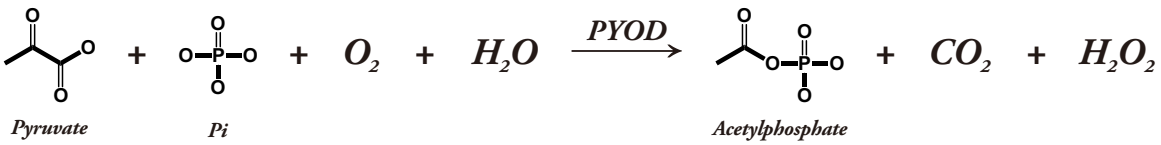


Treatment: 50mM Tris-HCl buffer, pH 8.5, 20min

Pyruvate Oxidase

Pyruvate:oxygen 2-oxidoreductase (phosphorylating)

Reaction



Product description

Catalog No.:	SDZ500470
Appearance:	Yellowish amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.2.3.3
CAS Number:	9001-96-1
Storage temperature:	-20℃
Specific activity:	≥ 50U/mg protein
Unit definition:	One unit will convert one micromole of pyruvate to acetylphosphate per min at pH 6.7at 37℃.

Properties

Stability:	Stable at -20℃ for at least one year	
Molecular weight:	68 kDa (SDS-PAGE)	
Isoelectric point:	5.0	
Michaelis constant:	5.3×10^{-4} M (Pyruvate)	
Optimum pH:	7.0-7.5	{Fig. 1}
Optimum temperature:	40℃-50℃	{Fig. 3}
pH Stability:	6.0-7.0 (37℃, 60min)	{Fig. 2}
Thermal stability:	< 45℃ (pH 6.5, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},Ni^{2+},Zn^{2+},NaN_3,Proclin,SDS,Triton X-100	
Effect of various chemicals:		{Table 1}

Table 1.

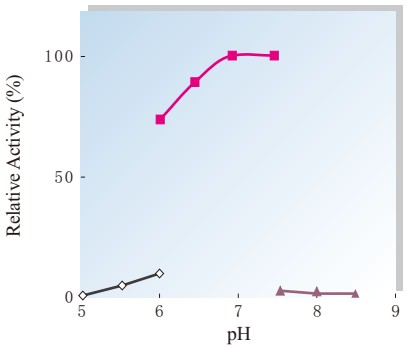
Effect of Various Chemicals on PYOD

[The enzyme dissolved in 200mM K-phosphate buffer, pH 6.5 (5U/ml) was incubated with each chemical at 37℃ for 1hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	88%
$CoCl_2$	2.0	90%
$CuSO_4$	2.0	62%
$FeCl_3$	2.0	92%
$MgSO_4$	2.0	88%
$MnSO_4$	2.0	86%
$NiCl_2$	2.0	51%
$ZnSO_4$	2.0	77%
$K_4Fe(CN)_6$	2.0	89%

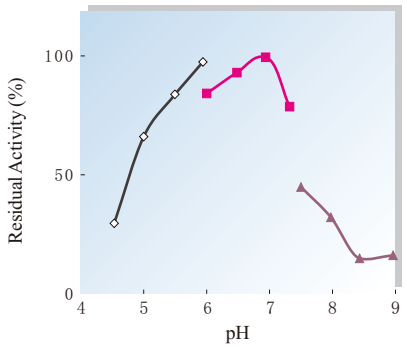
Chemical	Concn. (mM)	Residual activity
BME	2.0	89%
NEM	2.0	92%
EDTA	5.0	94%
NaN_3	20.0	73%
Proclin	0.045%	61%
Na-cholate	0.10%	94%
SDS	0.05%	1%
Triton X-100	0.10%	38%
Tween 20	0.10%	93%

Fig. 1 pH Activity



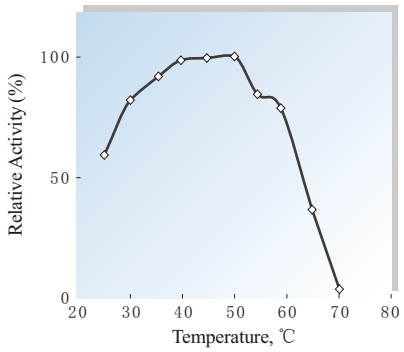
◇ : 20mM acetate buffer
■ : 20mM phosphate buffer
▲ : 20mM Tris-HCl buffer

Fig. 2 pH Stability



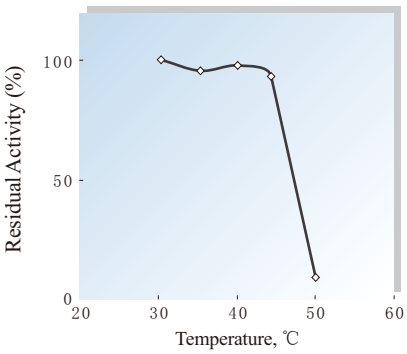
Treatment : 37℃,60min
◇ : 20mM acetate buffer
■ : 20mM phosphate buffer
▲ : 20mM Tris-HCl buffer

Fig. 3 Temperature activity



Buffer: 20mM K-phosphate buffer , pH 7.0

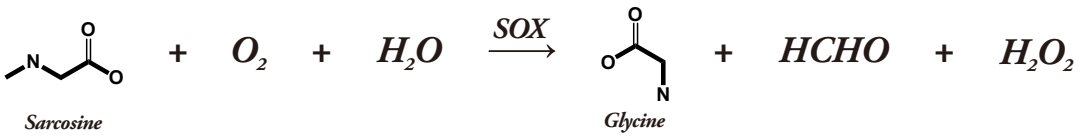
Fig. 4 Thermal stability



Treatment: 20mM K-phosphate buffer, pH 6.5, 30min

Sarcosine Oxidase

Reaction



Product description

Catalog No.:	SDZ500350
Appearance:	Yellowish amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.5.3.1
CAS Number:	9029-22-5
Storage temperature:	-20℃
Specific activity:	≥ 40U/mg protein
Unit definition:	One unit will oxidase one micromole of sarcosine per min at pH 8.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least four years	
Molecular weight:	44kDa (SDS-PAGE)	
Isoelectric point:	5.8	
Michaelis constant:	4.3×10^{-3}M (Sarcosine)	
Optimum pH:	7.5~8.0	{Fig. 1}
Optimum temperature:	50℃	{Fig. 3}
pH Stability:	6.0~10.5 (25℃, 24hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 8.0, 30min)	{Fig. 4}
Inhibitors:	Cu^{2+},NEM,Proclin	
Effect of various chemicals:		{Table 1}

Table 1.

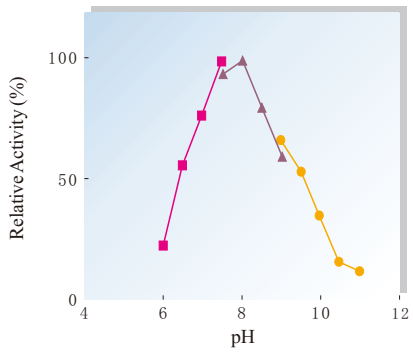
Effect of Various Chemicals on SOX

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 8.0 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	114%
$CoCl_2$	2.0	107%
$CuSO_4$	2.0	48%
$FeCl_3$	2.0	108%
$MgSO_4$	2.0	113%
$MnSO_4$	2.0	114%
$NiCl_2$	2.0	115%
$ZnSO_4$	2.0	87%

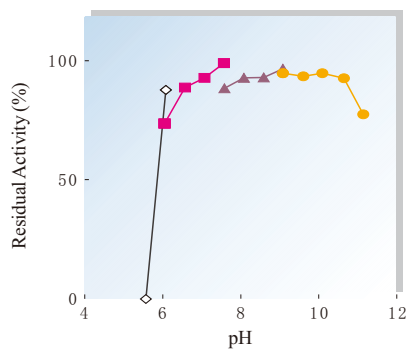
Chemical	Concn. (mM)	Residual activity
BME	2.0	104%
NEM	2.0	28%
EDTA	5.0	102%
NaN_3	20.0	89%
Proclin	0.045%	29%
Na-cholate	0.10%	123%
SDS	0.05%	105%
Triton X-100	0.10%	128%
Tween 20	0.10%	130%

Fig. 1 pH Activity



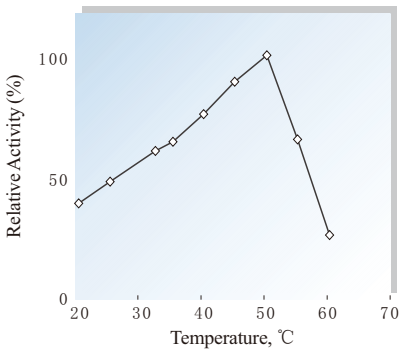
■ : 40mM phosphate buffer
▲ : 40mM Tris-HCl buffer
● : 40mM Glycine-NaOH buffer

Fig. 2 pH Stability



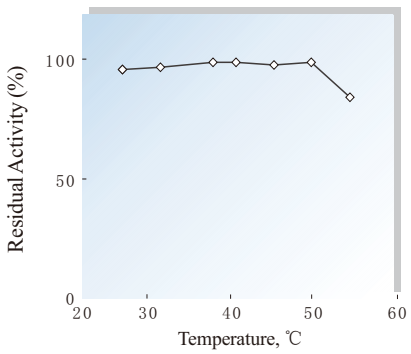
Treatment : 25℃,24hr
◇ : 40mM acetate buffer
■ : 40mM phosphate buffer
▲ : 40mM Tris-HCl buffer
● : 40mM Glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 40mM K-phosphate buffer , pH 7.5

Fig. 4 Thermal stability

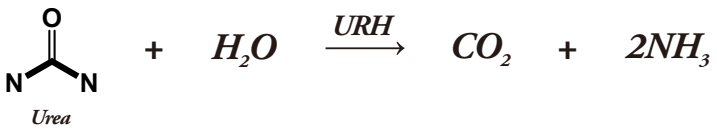


Treatment: 40mM K-phosphate buffer, pH 8.0, 30min

Urease

Urea amidohydrolase

Reaction



Product description

Catalog No.:	SDZ500241
Appearance:	White amorphous powder
Source:	Jack Bean
Enzyme Commission Number:	EC 3.5.1.5
CAS Number:	9002-13-5
Storage temperature:	-20℃
Specific activity:	≥ 2000U/mg protein
Unit definition:	One unit hydrolyze one micromole of urea per min at pH 8.0 at 37℃.

Properties

Stability:	Stable at -20℃ for at least five years	
Molecular weight:	90kDa (SDS-PAGE)	
Isoelectric point:	5.1	
Michaelis constant:	3.7×10^{-3}M (Urea)	
Optimum pH:	7.5	{Fig. 1}
Optimum temperature:	50℃~55℃	{Fig. 3}
pH Stability:	4.5~10.0 (30℃, 17hr)	{Fig. 2}
Thermal stability:	< 60℃ (pH 8.0, 1hr)	{Fig. 4}
Inhibitors:	Cu^{2+},Zi^{2+},Zn^{2+},NEM,Proclin	
Effect of various chemicals:		{Table 1}

Table 1.

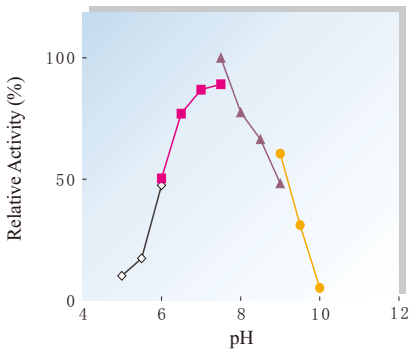
Effect of Various Chemicals on URH

[The enzyme dissolved in 50mM Tris-HCl buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	101%
$CuSO_4$	2.0	6%
$MgSO_4$	2.0	102%
$MnSO_4$	2.0	94%
NaCl	2.0	106%
$NiCl_2$	2.0	11%
$ZnSO_4$	2.0	59%
$K_4Fe(CN)_6$	2.0	100%

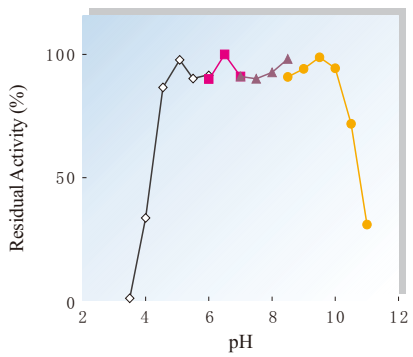
Chemical	Concn. (mM)	Residual activity
BME	2.0	96%
NEM	2.0	0%
EDTA	5.0	118%
NaN_3	20.0	100%
Proclin	0.045%	0%
Na-cholate	0.10%	108%
SDS	0.05%	100%
Triton X-100	0.10%	107%
Tween 20	0.10%	115%

Fig. 1 pH Activity



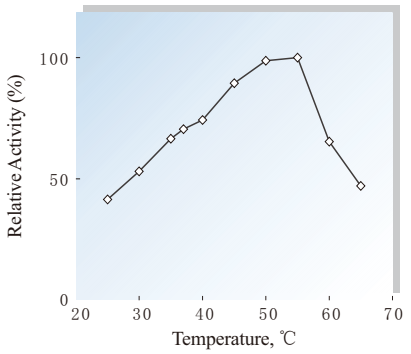
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM glycine-NaOH buffer

Fig. 2 pH Stability



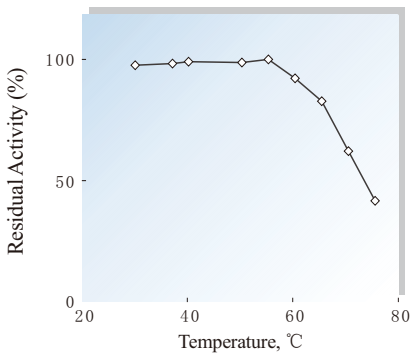
Treatment : 30℃, 17hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 50mM Tris-HCl buffer , pH 8.0

Fig. 4 Thermal stability

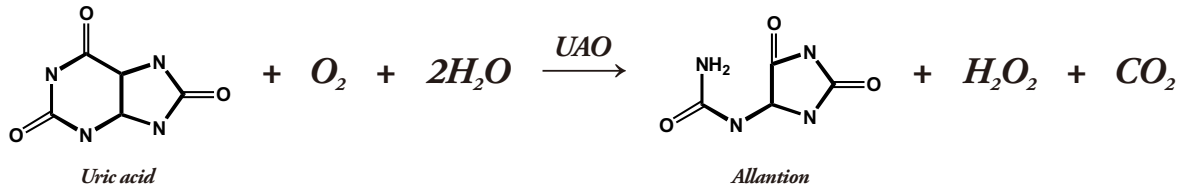


Treatment: 50mM Tris-HCl buffer, pH 8.0, 1hr

Uricase

Urate:oxygen oxidoreductase

Reaction



Uric acid *Allantion*

Product description

Catalog No.:	SDZ500070
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.7.3.3
CAS Number:	9002-12-4
Storage temperature:	-20℃
Specific activity:	≥10U/mg protein
Unit definition:	One unit will oxidize one micromole of uric acid at pH 8.5 at 25℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	34 kDa (SDS-PAGE)	
Isoelectric point:	5.4	
Michaelis constant:	1.0×10^{-5}M (Uric acid)	
Optimum pH:	8.5	{Fig. 1}
Optimum temperature:	37℃	{Fig. 3}
pH Stability:	6.0~11.0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 65℃ (pH 8.5, 10min)	{Fig. 4}
Inhibitors:	Co^{2+} ,Cu^{2+} ,Fe^{3+},Ni^{2+},Zn^{2+},NEM,Proclin,SDS	
Effect of various chemicals:		{Table 1}

Table 1.

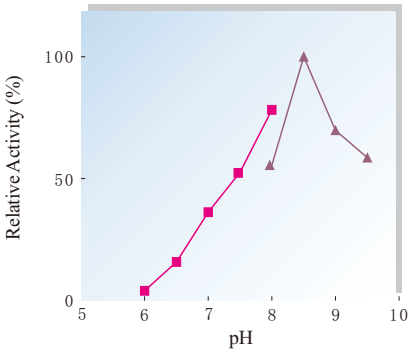
Effect of Various Chemicals on UAO

[The enzyme dissolved in 50mM Boric Acid buffer, pH 8.5 (1U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	99%
$CoCl_2$	2.0	36%
$CuSO_4$	2.0	3%
$FeCl_3$	2.0	30%
$MgSO_4$	2.0	100%
$MnSO_4$	2.0	95%
$NiCl_2$	2.0	10%
$ZnSO_4$	2.0	6%

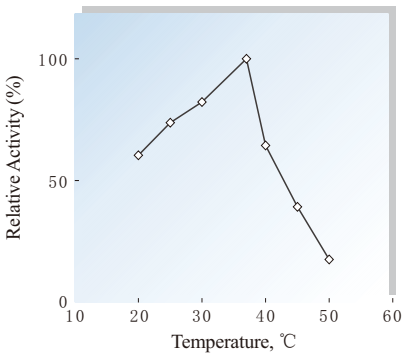
Chemical	Concn. (mM)	Residual activity
BME	2.0	98%
NEM	2.0	4%
EDTA	5.0	105%
NaN_3	20.0	104%
Proclin	0.045%	8%
Na-cholate	0.10%	110%
SDS	0.05%	19%
Triton X-100	0.10%	100%
Tween 20	0.10%	105%

Fig. 1 pH Activity



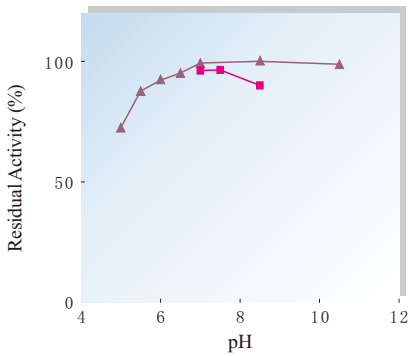
■ : 50mM phosphate buffer
▲ : 50mM borate buffer

Fig. 3 Temperature activity



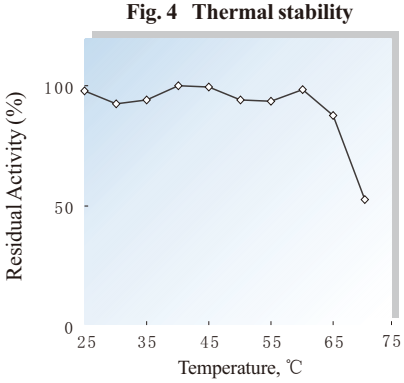
Buffer: 50mM borate buffer , pH 8.5

Fig. 2 pH Stability



Treatment : 25℃, 20hr
■ : 50mM phosphate buffer
▲ : 50mM borate buffer

Fig. 4 Thermal stability

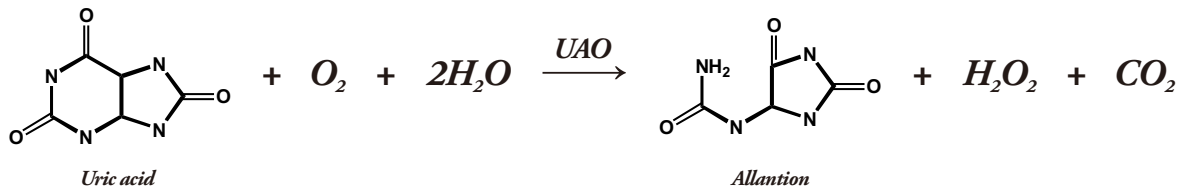


Treatment: 50mM borate buffer,
pH 8.5, 10min

Uricase

Urate:oxygen oxidoreductase

Reaction



Uric acid *Allantion*

Product description

Catalog No.:	SDZ500071
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.7.3.3
CAS Number:	9002-12-4
Storage temperature:	-20℃
Specific activity:	≥10U/mg protein
Unit definition:	One unit will oxidize one micromole of uric acid at pH 8.5 at 25℃.

Properties

Stability:	Stable at -20℃ for at least four years	
Molecular weight:	34 kDa (SDS-PAGE)	
Isoelectric point:	6.1	
Michaelis constant:	7.0×10^{-5}M (Uric acid)	
Optimum pH:	8.5~9.0	{Fig. 1}
Optimum temperature:	25℃~40℃	{Fig. 3}
pH Stability:	6.0~10.5 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 55℃ (pH 8.5, 10min)	{Fig. 4}
Inhibitors:	Co^{2+},Cu^{2+},Ni^{2+},Zn^{2+}	
Effect of various chemicals:		{Table 1}

Table 1.

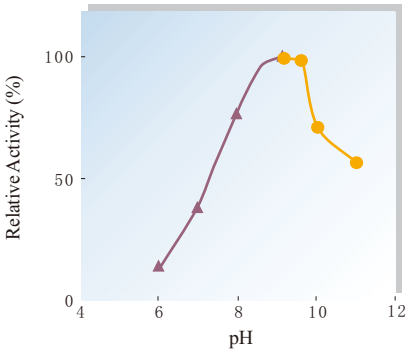
Effect of Various Chemicals on UAO

[The enzyme dissolved in 50mM Boric Acid buffer, pH 8.5 (1U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	96%
$CoCl_2$	2.0	69%
$CuSO_4$	2.0	7%
$FeCl_3$	2.0	94%
$MgSO_4$	2.0	99%
$MnSO_4$	2.0	92%
$NiCl_2$	2.0	32%
$ZnSO_4$	2.0	38%

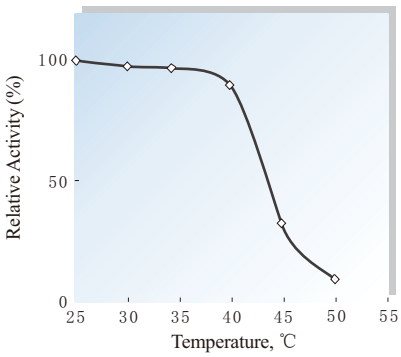
Chemical	Concn. (mM)	Residual activity
BME	2.0	100%
NEM	2.0	94%
EDTA	5.0	99%
NaN_3	20.0	98%
Na-cholate	0.10%	102%
SDS	0.05%	108%
Triton X-100	0.10%	100%
Tween 20	0.10%	99%

Fig. 1 pH Activity



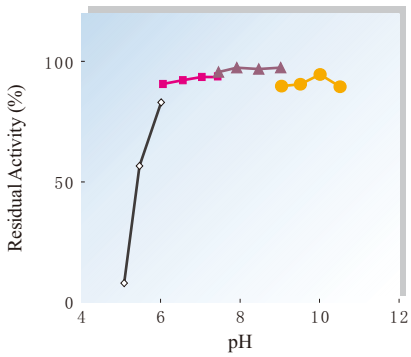
▲ : 50mM borate buffer
● : 50mM glycine-NaOH buffer

Fig. 3 Temperature activity



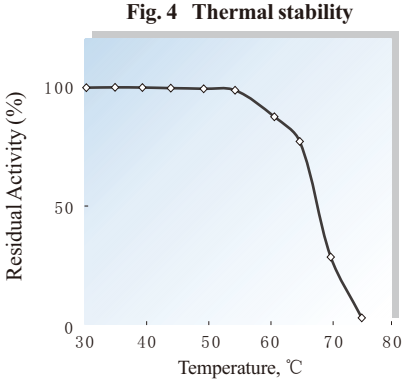
Buffer: 50mM borate buffer , pH 8.5

Fig. 2 pH Stability



Treatment : 25℃, 20hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM boric acid-borax buffer
● : 50mM glycine-NaOH buffer

Fig. 4 Thermal stability

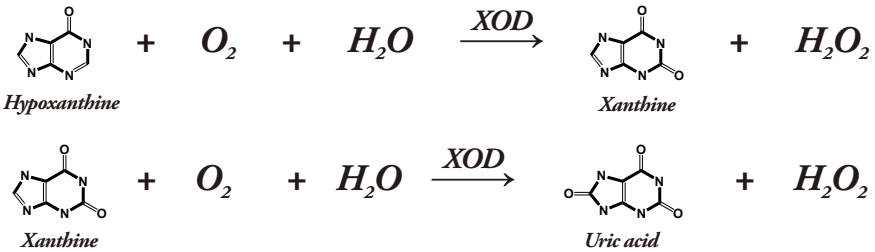


Treatment: 50mM borate buffer,
pH 8.5, 10min

Xanthine Oxidase

Xanthine:oxygen oxidoreductase

Reaction



Product description

Catalog No.:	SDZ500110
Appearance:	Brown amorphous powder
Source:	Arthrobacter sp.
Enzyme Commission Number:	EC 1.17.3.2
CAS Number:	9002-17-9
Storage temperature:	-20℃
Specific activity:	⩾ 50U/mg protein
Unit definition:	One unit will convert one micromole of xanthine to uric acid per min at pH 7.5 at 37℃.

Properties

Stability:	Stable at -20℃ for at least two years	
Molecular weight:	160 kDa (SDS-PAGE)	
Isoelectric point:	4.0	
Michaelis constant:	1.4×10^{-4}M (Xanthine)	
Optimum pH:	6.0~ 7.5	{Fig. 1}
Optimum temperature:	45℃~55℃	{Fig. 3}
pH Stability:	6.0~9.5 (30℃, 16hr)	{Fig. 2}
Thermal stability:	< 55℃ (pH7.5, 20min)	{Fig. 4}
Inhibitors:	Cu^{2+},BME	
Effect of various chemicals:		{Table 1}

Table 1.

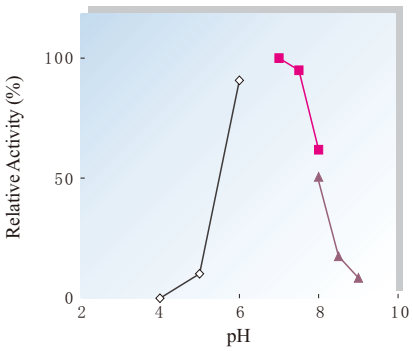
Effect of Various Chemicals on XOD

[The enzyme dissolved in 100mM Tris-HCl buffer, pH 8.0 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	98%
$CoCl_2$	2.0	95%
$CuSO_4$	2.0	61%
$FeCl_3$	2.0	109%
$MgSO_4$	2.0	99%
$MnSO_4$	2.0	97%
$NiCl_2$	2.0	98%
$ZnSO_4$	2.0	80%
$K_4Fe(CN)_6$	2.0	97%

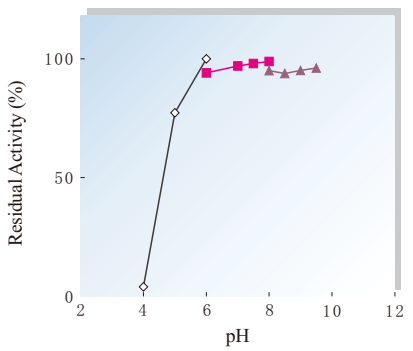
Chemical	Concn. (mM)	Residual activity
BME	2.0	0%
NEM	2.0	83%
EDTA	5.0	100%
NaN_3	20.0	101%
Proclin	0.045%	99%
Na-cholate	0.10%	106%
SDS	0.05%	108%
Triton X-100	0.10%	102%
Tween 20	0.10%	110%

Fig. 1 pH Activity



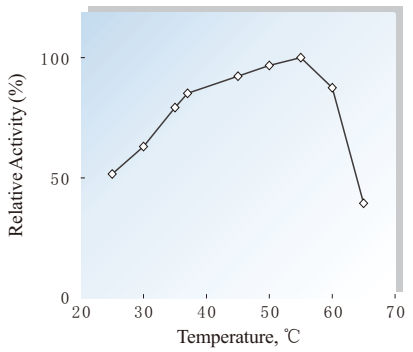
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer

Fig. 2 pH Stability



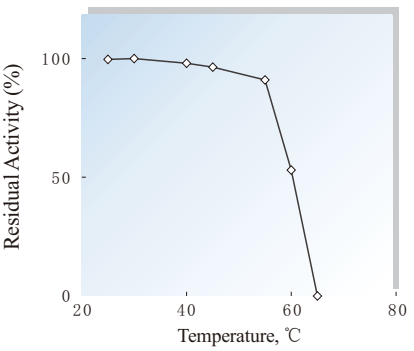
Treatment : 30℃,16hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer

Fig. 3 Temperature activity



Buffer: 50mM K-phosphate buffer , pH 7.5

Fig. 4 Thermal stability



Treatment: 50mM K-phosphate buffer, pH 7.5, 20min

Enzymes for R&D

N-Acetyl-b-D-glucosaminidase

Reaction

$$(N\text{-acetyl-D-glucosamine})_4 + 3H_2O \xrightarrow{NAG} 4\ 2\text{-(acetylamino)-2-deoxy-beta-D-glucopyranose}$$

Product description

Catalog No.:	SDZ500520
Appearance:	Pale brown liquid
Source:	Porcine kidney
Enzyme Commission Number:	EC 3.2.1.53
CAS Number:	9012-33-3
Storage temperature:	2−8℃
activity:	≥ 10U/ml
Unit definition:	One unit will hydrolyse one micromole of MNP-GlcNAc to 2-methoxy-4-(2'-nitrovinyl)-phenol per minute at 37 ℃.

NAG

Angiotensin Converting Enzyme

Reaction

Release of a C-terminal dipeptide, oligopeptide-/-Xaa-Yaa, when Xaa is not Pro, and Yaa is neither Asp nor Glu. Thus, conversion of angiotensin I to angiotensin II, with increase in vasoconstrictor activity, but no action on angiotensin II

Product description

Catalog No.:	SDZ500551
Appearance:	Yellow powder
Source:	Pocine lung
Enzyme Commission Number:	EC 3. 4. 15. 1
CAS Number:	9015−82−1
Storage temperature:	-20℃
Activity:	≥ 0.05U/mg solid

ACE

Creatine Kinase

Reaction

$$ATP + Creatine \xrightleftharpoons{CKBB} ADP + Phosphocreatine$$

Product description

Catalog No.:	SDZ500591
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 2.7.3.2
CAS Number:	9001-15-4
Storage temperature:	-20℃
Specific activity:	≥ 10U/mg protein
Unit definition:	One unit will convert one micromole of creatine phosphate to creatine per minute at 37℃.

CKBB

Creatine Kinase

Reaction

$$ATP + Creatine \xrightleftharpoons{CKMB} ADP + Phosphocreatine$$

Product description

Catalog No.:	SDZ500592
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 2.7.3.2
CAS Number:	9001-15-4
Storage temperature:	-20℃
Specific activity:	≥ 20U/mg protein
Unit definition:	One unit will convert one micromole of creatine phosphate to creatine per minute at 37℃.

CKMB

Creatine Kinase

Reaction

$$ATP + Creatine \xrightleftharpoons{CKMM} ADP + Phosphocreatine$$

Product description

Catalog No.:	SDZ500590
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 2.7.3.2
CAS Number:	9001-15-4
Storage temperature:	-20℃
Specific activity:	⩾ 40U/mg protein
Unit definition:	One unit will convert one micromole of creatine phosphate to creatine per minute at 37℃.

CKMM

Glycyle Proline Dipeptidyl Aminopeptidase

Reaction

Release of an N-terminal dipeptide, Xaa-Yaa-/-Zaa-, from a polypeptide, preferentially when Yaa is Pro, provided Zaa is neither Pro nor hydroxyproline

Product description

Catalog No.:	SDZ500560
Appearance:	Reddish-brown liquid
Source:	Pocine liver
Enzyme Commission Number:	EC 3.4.14.5
Storage temperature:	2-8℃
Specific activity:	⩾ 800U/mL

GPDA

5'Nucleotidase

Reaction

$$5'ribonucleotide + H_2O \xrightarrow{5'NT} Ribonucleoside + Phosphate$$

Product description

Catalog No.:	SDZ500270
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 3.1.3.5
CAS Number:	9027-73-0
Storage temperature:	-20℃
Specific activity:	⩾ 50U/mg protein
Unit definition:	One unit is defined as the amount of 5'NT that generates one micromole of inosine from IMP per minute at 37℃.

5'NT

Phosphoglucomutase

α-D-glucose 1,6-phosphomutase

Reaction

$$\alpha\text{-}D\text{-}glucose\ 1\text{-}phosphate \xrightarrow{PGM} D\text{-}glucose\ 6\text{-}phosphate$$

Product description

Catalog No.:	SDZ500090
Appearance:	White powder, lyophilized
Source:	Microorganism
Enzyme Commission Number:	EC 5.4.2.2
CAS Number:	9001-81-4
Storage temperature:	-20℃
Specific activity:	⩾100U/mg protein
Unit definition:	One unit will convert one micromole of α-D-glucose 1-phosphate to α-D-glucose 6-phosphate per minute at pH 7.4 at 30℃.

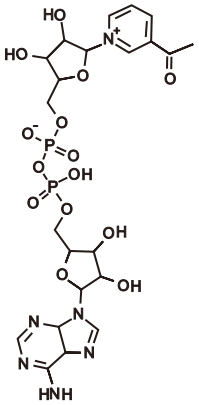
PGM

Substrates and Cofactors

Acetylpyridine-adenine Dinucleotide

Product description

Cat. No.:	SDZ600080
Product:	3-Acetylpyridine-adenine dinucleotide ; 3-Acetylpyridine-adenine dinucleotide, reduced form; 3-Acetylpyridine nad;
Appearance:	Yellowish powder
CAS Number:	86-08-8
Solubility:	Soluble in water
Storage temperature:	<0 °C
Formula:	$C_{22}H_{28}N_6O_{14}P_2$
Formular weight:	662.4
Purity:	⩾ 84% (by HPLC)

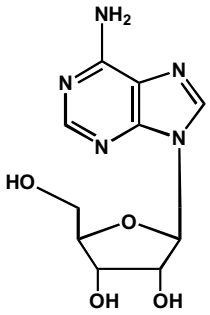


APAD

Adenosine

Product description

Cat. No.:	SDZ600060
Product:	Adenosine;Adenine-9- β -D-ribofuranoside; 9- β -D-Ribofuranosyladenine; Adenine riboside
Appearance:	White crystalline powder
CAS Number:	58-61-7
Solubility:	Slightly soluble in water
Storage temperature:	2 - 8 °C
Formula:	$C_{10}H_{13}N_5O_4$
Formular weight:	267
Purity:	⩾ 99%
Usage:	Substrate for adenosine deaminase assay

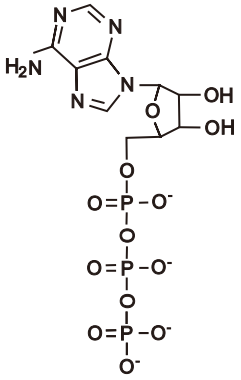


ADO

Adenosine Triphosphate

Product description

Cat. No.:	SDZ600090
Product:	Adenosine 5' –Triphosphate disodium salt hydrate
Appearance:	White amorphous powder
CAS Number:	34369-07-8
Solubility:	Soluble in water
Storage temperature:	-20 °C
Formula:	$C_{10}H_{14}N_5O_{13}P_3Na_2$
Formular weight:	551.14
Purity:	≥ 95%

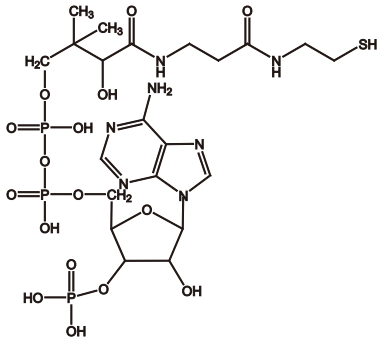


ATP

Coenzyme A

Product description

Cat. No.:	SDZ600110
Product:	Coenzyme A
Appearance:	White amorphous powder
CAS Number:	85-61-0
Solubility:	Soluble in water
Storage temperature:	<-20 °C
Formula:	$C_{21}H_{36}N_7O_{16}P_3S$
Formular weight:	767.5
Purity:	≥95% (Enzymatic method)
Usage:	Substrate for NEFA assay

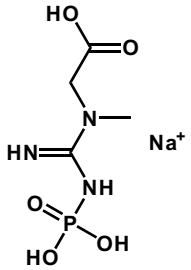


CoA

Creatine Phosphate

Product description

Cat. No.:	SDZ600140
Product:	Creatine Phosphate sodium salt
Appearance:	White powder
CAS Number:	922-32-7
Solubility:	Soluble in water
Storage temperature:	2-8 °C
Formula:	$C_4H_8N_3Na_2O_5P{\cdot}4H_2O$
Formular weight:	327.2
Purity:	≥97% (HPLC)

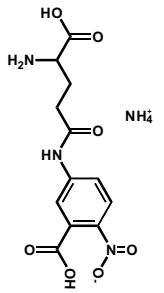


CP

Glupa-carboxylate

Product description

Cat. No.:	SDZ600130
Product:	Glupa-carboxylate monoammonium salt
Appearance:	Yellowish to white crystalline powder
CAS Number:	63699-78-5
Solubility:	Soluble in water
Storage temperature:	2-8 °C
Formula:	$C_{12}H_{12}N_3O_7NH_4$
Formular weight:	328.3
Purity:	≥99% (HPLC)

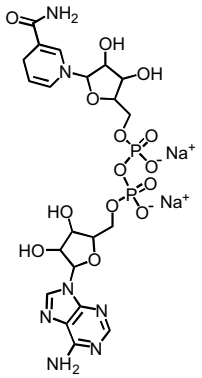


Glupa-C

Nicotinamide Adenine Dinucleotide reduced form

Product description

Cat. No.:	SDZ600041
Product:	Nicotinamide adenine dinucleotide disodium salt
Appearance:	Yellow amorphous powder
CAS Number:	606-68-8
Solubility:	Soluble in water
Storage temperature:	-20 °C
Formula:	$C_{21}H_{27}N_7O_{14}P_2Na_2$
Formular weight:	709.41
Purity:	⩾ 98%

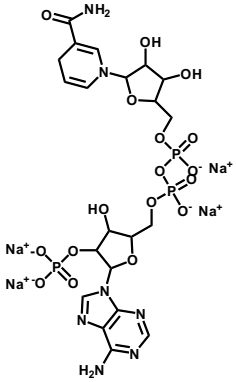


NADH

Nicotinamide Adenine Dinucleotide Phosphate reduced form

Product description

Cat. No.:	SDZ600160
Product:	Nicotinamide adenine dinucleotide phosphate tetrasodium salt
Appearance:	White to yellow powder
CAS Number:	2646-71-1
Solubility:	Soluble in water
Storage temperature:	-20°C
Formula:	$C_{21}H_{26}N_7O_{17}P_3Na_4$
Formular weight:	833.4
Purity:	⩾95% (HPLC)

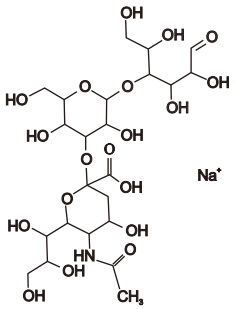


NADPH

3'-Sialyllactose

Product description

Cat. No.:	SDZ600070
Product:	Neu5Ac-a-2-3-Gal-b-1-4-Glc, GM3 trisaccharide sodium salt, 3'-N-Acetylneuraminyl-D-lactose sodium salt
Appearance:	White amorphous powder
CAS Number:	35890-38-1
Solubility:	Soluble in water
Storage temperature:	-20 °C
Formula:	$C_{23}H_{38}NO_{19}Na$
Formular weight:	655
Purity:	⩾ 98%
Usage:	Substrate for neuraminidase assay

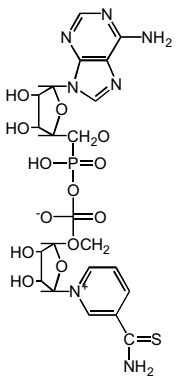


3'-SL

Thionicotinamide-adenine Dinucleotide

Product description

Cat. No.:	DZ600011
Product:	Oxidized form
Appearance:	Yellowish amorphous powder
CAS Number:	4090-29-3
Solubility:	Soluble in water
Storage temperature:	-20℃
Formula:	$C_{21}H_{27}N_7O_{13}SP_2$
Formular weight:	679 (as Anhydrous free acid)
Purity:	⩾ 92%
Usage:	Substrate for TBA assay



THIO-NAD

Antigens and Antibodies

α1-Acid Glycoprotein

alpha1-Acid glycoprotein (AAG), also known as orosomucoid-1, is a 41–43-kDa glycoprotein with a pI of 2.8–3.8, an acute-phase serum protein that is produced by the liver in response to inflammation and infection. Serum AAG levels are elevated during inflammatory responses. It is a 183 amino acid protein with five N-linked glycans that comprise 45% of its 43 kDa mass. Alterations of N-glycosylation is associated with certain pathophysiological states. AAG is considered as a natural anti-inflammatory and immunomodulatory agent notably with respect to its anti-neutrophil and anti-complement activity as various immunomodulating effects, the ability to bind basic drugs and many other molecules like steroid hormones.

As an indicator of acute phase response, AAG is abnormally increased in patients with rheumatism, malignant tumors and myocardial infarction, and decreases with malnutrition and severe liver damage.

Description	Abbr.	Cat No.	Remarks
Goat anti-α1 Acid glycoprotein polyclonal antibodies	pAb<AAG>G IgG	SDZ700360	EIA/WB

AAG

Adiponectin

Adiponectin, also known as Acrp30, is a 244-amino-acid-long polypeptide (protein). Adiponectin associates into trimers that may assemble into medium molecular weight (MMW) hexamers and then into > 300 kDa high molecular weight (HMW) oligomers. The glycosylation of four hydroxylated lysine residues in the collagenous domain is required for the intracellular formation of HMW complexes. The various multimeric forms of Adiponectin exhibit distinct tissue specific and gender specific profiles and activities.

Adiponectin is an adipocyte-derived protein with wide ranging paracrine and endocrine effects on metabolism and inflammation. It is induced during adipocyte differentiation, and its secretion is stimulated by insulin. It promotes adipocyte differentiation, fatty acid catabolism, and insulin sensitivity and is negatively correlated with obesity, type 2 diabetes, and atherogenesis. In this context, Adiponectin is an anti-inflammatory agent, but it exerts pro-inflammatory effects in non-metabolic disorders such as rheumatoid arthritis and inflammatory bowel disease.

Description	Abbr.	Cat No.	Remarks
Recombinant human Adiponectin	Adiponectin	SDZ900170	Control
Mouse anti-Adiponectin monoclonal antibodies	mAb-Adiponectin	SDZ7101700	EIA/Latex

ADI

Albumin

Albumin is a family of globular proteins that are abundant in blood plasma and have various physiological functions. Human serum albumin (HSA) is the main protein of human blood plasma. It makes up around 50% of human plasma proteins. It binds water, cations (such as Ca^{2+}, Na^{+} and K^{+}), fatty acids, hormones, bilirubin, thyroxine (T4) and pharmaceuticals (including barbiturates). Its main function is to regulate the oncotic pressure of blood. Albumin has a molecular weight of approximately 66.5 kDa. The isoelectric point of albumin is 4.7.

Albumin is notably significant in the detection of microalbuminuria. Microalbuminuria refers to the condition where small amounts of albumin start to leak into the urine, often indicating early stages of kidney damage. This is especially relevant for individuals with diabetes or high blood pressure, as these conditions can lead to kidney damage. Therefore, the detection of albumin in urine serves as an important diagnostic tool for identifying potential kidney disease at an early stage.

Description	Abbr.	Cat No.	Remarks
Goat anti-albumin polyclonal antibodies	pAb<MALB>G IgG	SDZ700550	Turbidimetry

MALB

Apolipoprotein A1

Apolipoprotein A1 (APOA1) is the major protein component of HDL particles in plasma. It has a specific role in lipid metabolism. ApoA1 is often used as a biomarker for prediction of cardiovascular diseases.

The major role of APOA1 is to activate lecithin, cholesterol acyltransferase (LCAT) and clearance of free cholesterol from extrahepatic tissues. Apolipoprotein A1 is an indicator of atherosclerosis. The present study shows that APOA1 levels are negatively related to coronary heart disease (CHD), and CHD is positively related to APOB. Patients with coronary artery disease generally have lower APOA1 levels and higher APOB levels.

Description	Abbr.	Cat No.	Remarks
Recombinant human Apoliprotein A1	ApoA1	SDZ900250	Control
Goat anti-human Apoliprotein A1 polyclonal antibodies	pAb<ApoA1>G IgG	SDZ700250	Turbidimetry

ApoA1

Apolipoprotein B

Apolipoprotein B (APOB) is the primary apolipoprotein of chylomicrons, VLDL, IDL, and LDL particles , which is responsible for carrying fat molecules (lipids).

APOB is a protein insoluble in water, consisting mainly of two subclasses, ApoB100 and ApoB48. ApoB100 is synthesized mainly in the liver and is the major structural protein of LDL and acts as a ligand for the LDL receptor to modulate the clearance rate of LDL from plasma. While ApoB48 is synthesized in the small intestine, it is an important component of CM. The measured value of ApoB in blood could directly reflect the content of LDL, and positively correlated with the degree of coronary artery lesions. Epidemiological studies have shown that the rise in ApoB is more significant than LDL-C and CHO in predicting CHD risk. Therefore, the concentration of ApoB is mainly used to predict the risk of cardiovascular and cerebrovascular diseases.

The increase of ApoB is the risk factor of heart and cerebrovascular disease. It can be found in coronary heart disease, nephrotic syndrome, diabetes, familial hypercholesterolemia, hepatitis or liver hypofunction

Description	Abbr.	Cat No.	Remarks
Human Apoliprotein B control	ApoB	SDZ900260	Control
Goat anti-human Apolipoprotein B polyclonal antibodies	pAb<ApoB>G IgG	SDZ700260	Turbidimetry

ApoB

Calprotectin

Calprotectin is a complex of the mammalian proteins S100A8 and S100A9. Other names for calprotectin include MRP8-MRP14, calgranulin A and B, cystic fibrosis antigen, L1, 60BB antigen, and 27E10 antigen.The proteins exist as homodimers but preferentially exist as S100A8/A9 heterodimers or heterotetramers (calprotectin) with antimicrobial, proinflammatory and prothrombotic properties. In the presence of calcium, calprotectin is capable of sequestering the transition metals iron, manganese and zinc via chelation.This metal sequestration affords the complex antimicrobial properties.

Faecal calprotectin has been used to detect intestinal inflammation (colitis or enteritis) and can serve as a biomarker for inflammatory bowel diseases. Blood-based calprotectin (in serum and plasma) is used in diagnostics of multiple inflammatory diseases, including autoimmune diseases, like arthritis, and severe infections including sepsis.

Description	Abbr.	Cat No.	Remarks
Recombinant human Calprotectin	CAL	SDZ900440	Control
Mouse anti-human Calprotectin monoclonal antibodies	mAb-CAL	SDZ7104400	EIA/Latex

CAL

Complement C3

Complement component 3, often simply called C3, is a protein of the immune system that is found primarily in the blood. It plays a central role in the complement system of vertebrate animals and contributes to innate immunity. In humans it is encoded on chromosome 19 by a gene called C3. C3 plays a key role in the activation of the complement system. Its activation is required for both classical and alternative complement activation pathways.

C3 is able to reflect the status of the immune system and the presence of certain diseases. A C3 complement blood test is capable of measuring the level of C3 in the blood and comparing it to the normal range. Low levels of C3 may indicate a deficiency in the complement system, which could increase the risk of infections or autoimmune disorders. High levels of C3 might indicate an acute or chronic inflammation, such as bacterial or fungal infections, or liver or kidney diseases. C3 can also serve as a biomarker for some diseases, such as lupus, rheumatoid arthritis, glomerulonephritis, and paroxysmal nocturnal hemoglobinuria. C3 is useful to diagnose and monitor these conditions, as well as evaluate the response to treatment.

Description	Abbr.	Cat No.	Remarks
Human complement C3	C3	SDZ900521	Control
Goat anti-human complement C3 polyclonal antibodies	pAb<C3>G IgG	SDZ700520	Turbidimetry

C3

Complement C4

Complement C4 is a key molecule in the complement system, one of the chief constituents of innate immunity for immediate recognition and elimination of invading microbes. It plays an essential role in the functions of both classical (CP) and lectin (LP) complement pathways. The C4 protein consists of 3 subunits (α , β ,and γ) having molecular weights (MWs) of ~95,000, 78,000, and 31,000, respectively. The isoelectric point of Complement C4 is close to the acidic pH of its formulation.

The Complement C4 assessment is one of the most frequently used complement component evaluations. It is performed when symptoms indicate an autoimmune disease. These symptoms may include extreme fatigue, muscle pain, joint pain, unexpected weight loss, muscle weakness, and muscle paralysis. The assessment is also used to monitor protein levels in people who have already been diagnosed with an autoimmune disease. A low level of C4 is associated with autoimmune diseases, such as lupus and rheumatoid arthritis.

Description	Abbr.	Cat No.	Remarks
Human Complement C4	C4	SDZ900531	Control
Goat anti-human Complement C4 polyclonal antibodies	pAb<C4>G IgG	SDZ700530	Turbidimetry

C4

Complement C1q

The complement component 1q (or simply C1q) is a protein complex involved in the complement system, which is part of the innate immune system. C1q together with C1r and C1s form the C1 complex.Antibodies of the adaptive immune system can bind antigen, forming an antigen-antibody complex. When C1q binds antigen-antibody complexes, the C1 complex becomes activated. Activation of the C1 complex initiates the classical complement pathway of the complement system. The antibodies IgM and all IgG subclasses except IgG4 are able to initiate the complement system.

Complement C1q is used as a biomarker to help identify patients who are at greater risk of developing antibody-mediated rejection (AMR). Additionally, it is useful for the assessment of an undetectable total complement (CH50) level, diagnosing congenital C1 deficiency, and diagnosing acquired deficiency of C1 inhibitor.

Description	Abbr.	Cat No.	Remarks
Human Complement Component 1q	C1q	SDZ900481	Control
Rabbit anti-human Component 1q polyclonal antibodies	pAb<C1q>RB IgG	SDZ700480	Latex
Mouse anti-human Component 1q monoclonal antibodies	mAb-C1q	SDZ7104800	EIA/Latex

C1q

Cystatin C

Cystatin C is a low molecular weight (13.4 kDa) cysteine proteinase inhibitor that is produced by all nucleated cells and found in body fluids, including serum. Since it is formed at a constant rate and freely filtered by the kidneys, its serum concentration is inversely correlated with the glomerular filtration rate (GFR), similar to creatinine.

The serum concentration of cystatin C in healthy individuals ranges around 0.8–1.2 mg/l, depending on analytical methods, and remains unchanged with infections, inflammatory or neoplastic states, and is not affected by body mass, diet, or drugs. Thus, cystatin C may be a more reliable marker of renal function (GFR) than creatinine. Change in the serum concentration of cystatin C has been proposed as an index of kidney function: increased serum levels are almost exclusively associated with a reduction in GFR. At the same time cystatin C is becoming increasingly known marker of elevated risk of death from cardiovascular causes, myocardial infarction and stroke, elevated serum cystatin C level is also a strong predictor of the risk of death and cardiovascular events in elderly persons.

Description	Abbr.	Cat No.	Remarks
Recombinant human Cystatin C	Cys-C	SDZ500901	Control
Mouse anti-human Cystatin C monoclonal antibodies	mAb-Cys-C	SDZ710010	EIA / WB

Cys-C

Deoxyribonuclease B

Deoxyribonuclease B (DNase B) is one of several extracellular enzymes produced by Group A beta-hemolytic streptococci(GAS). This enzyme plays a crucial role in the pathogenesis of diseases caused by GAS, including pharyngitis, scarlet fever, and rheumatic fever. The molecular weight of DNase B is between 21 and 31 kDa.

The presence of antibodies against DNase B in human serum is often used to confirm a clinical diagnosis of a previous Group A streptococcal infection. This is particularly useful in patients suspected of having a nonsuppurative complication such as acute glomerulonephritis or acute rheumatic fever. When used together with the Antistreptolysin O (ASO) test, more than 90% of past streptococcal infections can be identified. Therefore, testing for anti-DNase B is highly recommended to be performed in conjunction with ASO testing, especially when the ASO titer is borderline.

Description	Abbr.	Cat No.	Remarks
Recombinant Deoxyribonuclease B	DNase B	SDZ900420	Antigen
Goat anti-Deoxyribonuclease B polyclonal antibodies	pAb<DNase B>G IgG	SDZ700420	Control

Dnase B

Factor B

Factor B is a protein that is involved in the alternative pathway of complement activation, which is part of the innate immune system. Factor B can bind to C3b, a fragment of C3, and be cleaved by factor D into Ba and Bb. Bb is the catalytic subunit that forms the C3 and C5 convertases, which cleave more C3 and C5, leading to the formation of the membrane attack complex and the release of inflammatory mediators. Factor B can also regulate the proliferation of pre-activated B lymphocytes.

The Factor B Level Assay is used to measure the amount of the complement fragment Bb, an activation fragment of Factor B of the alternative pathway of complement, in human plasma or serum. This assay provides evidence of the involvement of the alternative pathway of complement. Measurement of alternative pathway activation aids in the diagnosis of several kidney diseases, such as chronic glomerulonephritis, lupus nephritis, as well as several skin diseases, e.g., dermatitis herpetiformis and pemphigus vulgaris. Other diseases in which activation of the alternative pathway of complement has been observed include rheumatoid arthritis, sickle cell anemia, and gram-negative bacterial infections.

Description	Abbr.	Cat No.	Remarks
Human Factor B	FB	SDZ900560	Control
Goat anti-humanFactor B polyclonal antibodies	pAb<FB>G IgG	SDZ700560	Turbidimetry

FB

α-Fetoprotein

AFP (α-Fetoprotein) is a major plasma protein produced by the yolk sac and the liver during fetal development. It is a glycoprotein of 591 amino acids and a carbohydrate moiety. AFP is the most abundant plasma protein found in the human fetus. Plasma levels decrease rapidly after birth. Normal adult levels are usually achieved by the age of 8 to 12 months. The function of AFP in adult humans is unknown.

AFP is measured in pregnant women through the analysis of maternal blood or amniotic fluid, as a screening test for a subset of developmental abnormalities. AFP is also produced by a variety of tumors including hepatocellular carcinoma, hepatoblastoma, and nonseminomatous germ cell tumors of the ovary and testis (eg, yolk sac and embryonal carcinoma), thus can also be used as a biomarker to detect a subset of tumors in non-pregnant women, men, and children. A level above 500 nanograms/milliliter of AFP in adults can be indicative of hepatocellular carcinoma, germ cell tumors, and metastatic cancers of the liver. Serum AFP test is useful for the follow-up management of patients undergoing cancer therapy, especially for testicular and ovarian tumors and for hepatocellular carcinoma.

Description	Abbr.	Cat No.	Remarks
Mouse anti-human α-Fetoprotein monoclonal antibodies	mAb-AFP	SDZ7101900	EIA / WB

AFP

Fibronectin

Fibronectin is a high molecular weight glycoprotein of the extracellular matrix that binds to membrane-spanning receptor proteins called integrins. It plays a major role in cell adhesion, growth, migration, and differentiation and it is important for processes such as wound healing and embryonic development.Fibronectin exists as a protein dimer, consisting of two nearly identical polypeptide chains linked by a pair of C-terminal disulfide bonds. Each fibronectin subunit has a molecular weight of ~230 – ~275 kDa.The isoelectric point of Fibronectin is 5.5 ~ 63.

Fibronectin has emerged as a key component of the tumor matrisome, making it a potential diagnostic and therapeutic target in cancer. It has been shown that the reprogramming of the stroma in tumors is accompanied by an up-regulation of extracellular matrix proteins and their receptors, with Fibronectin being an important component. Moreover, fetal Fibronectin testing is a common clinical test, performed via cervicovaginal secretion swab after 22 weeks of pregnancy, and is used to identify women at increased risk for preterm delivery.

Description	Abbr.	Cat No.	Remarks
Human Fibronectin	FN	SDZ900510	Control
Goat anti-human Fibronectin	pAb<FN>G IgG	SDZ700510	Turbidimetry

FN

Galectin-3

Galectin-3 is a protein that in humans is encoded by the LGALS3 gene. Galectin-3 is a member of the lectin family, of which 14 mammalian galectins have been identified.

Galectin-3 is approximately 30 kDa and, like all galectins, contains a carbohydrate-recognition-binding domain (CRD) of about 130 amino acids that enable the specific binding of β -galactosides.

Galectin-3, also known as Mac-2, L29, CBP35, and etaBP, is a secreted lectin that acts in anti-microbial immunity by pathogen opsonization, macrophage recruitment, and the activation of mast cells and neutrophils. It can also contribute to chronic inflammation and fibrosis. It is implicated in neuroinflammatory disorders of the central nervous system, cardiac fibrosis, and heart failure, as well as tumor growth, progression, and metastasis.

Description	Abbr.	Cat No.	Remarks
Recombinant human Galectin-3	GL3	SDZ900070	Control
Mouse anti-human Galectin-3 monoclonal antibodies	mAb-GL3	SDZ7100700	EIA

GI3

Cholyglycine

Cholyglycine (CG) is synthesized from cholesterol in the liver to cholic acid (CA), and then with a combination of glycine, forming a kind of conjugated bile acid, is the main components of the bile acid and important metabolite of cholesterol. The liver circulation is the main way of CG Transformation discharge. Only 1% CG overflows into the systemic circulation. CG forms a protein binding in serum.

Cholylglycine is a much better marker than the traditional liver function tests. Testing of cholylglycine can provide important information for liver diseases' diagnosis, treatment, and follow-up care. In addition to liver diseases, cholylglycine can also serve as marker for other diseases such as biliary disease and intrahepatic cholestasis of pregnancy.

Description	Abbr.	Cat No.	Remarks
Mouse anti-Glycocholic acid monoclonal antibodies	mAb-GCA	SDZ7101000	EIA / WB

CG

Heparin Binding Protein

Heparin-binding protein (HBP), also known as azurocidin or CAP-37, is a multifunctional protein derived from neutrophils. It plays a crucial role in the body's immune response to infection. When an infection occurs, neutrophils release HBP, leading to elevated HBP levels in the blood. Therefore, HBP is considered an important indicator of infection.

HBP is a cationic antimicrobial protein, meaning it has properties that enable it to kill or inhibit the growth of microbes. It also has chemotactic properties, which means it can direct the movement of cells in response to a chemical stimulus. These properties make HBP a valuable tool in the fight against infectious diseases.HBP is a glycoprotein with a molecular weight of approximately 25 kDa. The protein structure contains 225 amino acids.

HBP has shown potential as a biomarker for various conditions. For instance, it has been identified as a novel biomarker linking four different cardiovascular diseases. Moreover, research has suggested that HBP levels in cerebrospinal fluid could be used as a diagnostic marker for acute bacterial meningitis.

Description	Abbr.	Cat No.	Remarks
Recombinant human Heparin-binding protein	HBP	SDZ900591	Control

HBP

Heart-type Fatty Acid-binding Protein

Heart-type Fatty Acid-Binding Protein (H-FABP) is a small cytoplasmic protein (15 kDa) released from cardiac myocytes following an ischemic episode. Like the nine other distinct FABPs that have been identified, H-FABP is involved in active fatty acid metabolism where it transports fatty acids from the cell membrane to mitochondria for oxidation

H-FABP is a sensitive biomarker for myocardial infarction and can be detected in the blood within one to three hours of the pain.

H-FABP has been proven to significantly predict 30-day mortality in acute pulmonary embolism. H-FABP is more effective than Troponin T in risk stratifying Chronic Heart Failure patients. H-FABP is beginning to create interest with researchers who have found emerging evidence that indicates a role in differentiating between different neurodegenerative diseases.

Description	Abbr.	Cat No.	Remarks
Recombinant Heart-type Fatty Acid-Binding protein	H-FABP	SDZ900090	Control
Mouse anti-Heart-type Fatty Acid-Binding protein monoclonal antibodies	mAb-H-FABP	SDZ7100900	EIA / WB

H-FABP

Immunoglobulin A

Immunoglobulin A (IgA) is an antibody that plays a crucial role in the immune function of mucous membranes. It is the most abundant type of antibody in the body, comprising most of the immunoglobulin in secretions and a significant amount of circulating immunoglobulin. IgA is the main immunoglobulin found in mucous secretions, including tears, saliva, sweat, colostrum, and secretions from the genitourinary tract, gastrointestinal tract, prostate, and respiratory epithelium. It is also found in small amounts in blood. IgA has two subclasses (IgA1 and IgA2) and can be produced as a monomeric as well as a dimeric form. The IgA dimeric form is the most prevalent and is also called secretory IgA (sIgA). The secretory component of sIgA protects the immunoglobulin from being degraded by proteolytic enzymes, thus, sIgA can survive in the harsh gastrointestinal tract environment and provide protection against microbes that multiply in body secretions.The molecular weight of IgA is approximately 160 kDa or 320 KDa for the secretory form.

IgA has shown potential as a biomarker for various conditions. For instance, it has been identified as a novel biomarker linking four different cardiovascular diseases. Moreover, research has suggested that IgA levels in cerebrospinal fluid could be used as a diagnostic marker for acute bacterial meningitis.

Description	Abbr.	Cat No.	Remarks
Goat anti- human Immunoglobulin A polyclonal antibodies	pAb<IgA>G IgG	SDZ700460	Turbidimetry

Immunoglobulin G

Immunoglobulin G is a type of antibody, representing approximately 75% of serum antibodies in humans, IgG is the most common type of antibody found in the circulation.

IgG antibodies are large molecules of about 150 kDa made of four peptide chains. It contains two identical class γ heavy chains of about 50 kDa and two identical light chains of about 25 kDa.

The measurement of immunoglobulin G can be a diagnostic tool for certain conditions, such as autoimmune hepatitis, myeloma, primary immunodeficiency diseases, and chronic infection.

Description	Abbr.	Cat No.	Remarks
Human Immunolgobulin G	IgG	SDZ900340	Control
Goat Immunolgobulin G antibodies	gpAb-IgG	SDZ700340	Turbidimetry

Immunoglobulin G4

Immunoglobulin G4 (IgG4) is a subclass of the Immunoglobulin G (IgG) family, which is the most common type of antibody found in blood circulation. IgG4 is involved in various immune responses, such as immune tolerance and suppression of inflammation. It is produced and released by plasma B cells. IgG4 is unique among the IgG subclasses for its ability to undergo 'Fab-arm exchange' (FAE). This process results in bispecific antibodies with potentially enhanced protective functions. The FAE process is thought to be a key factor in the anti-inflammatory properties of IgG4, preventing the formation of large, potentially harmful immune complexes.The molecular weight of IgG4 is approximately 150 kDa.

IgG4 has demonstrated its value as a potential indicator for a variety of conditions. Specifically, it has been recognized as a new marker for IgG4-Related Disease (IgG4-RD), a chronic disorder characterized by immune-mediated fibroinflammation that often presents with tumor-like masses or painless enlargement of multiple organs. While increased levels of IgG4 can aid in the diagnosis, they are not sufficiently specific on their own.

Description	Abbr.	Cat No.	Remarks
Human Immunoglobulin G4	IgG4	SDZ900601	Control

IgG4

Immunoglobulin M

IgM is a polymer, where multiple immunoglobulins are linked together by strong covalent bonds known as disulfide bonds. This occurs mostly to produce pentamers (5 linked immunoglobulins) . IgM has a molecular mass of approximately 970 kDa (in its pentamer form). Because each immunoglobulin monomer has two antigen binding sites, a pentameric IgM has 10 binding sites. Typically, however, IgM cannot bind 10 antigens at the same time because the large size of most antigens hinders binding to nearby sites.

IgM antibodies appear early in the course of an infection and usually reappear, to a lesser extent, after further exposure. IgM antibodies do not pass across the human placenta .

These two biological properties of IgM make it useful in the diagnosis of infectious diseases. Demonstrating IgM antibodies in a patient's serum indicates recent infection, or in a neonate's serum indicates intrauterine infection.

Description	Abbr.	Cat No.	Remarks
Goat anti-human Immunoglobulin A polyclonal antibodies	pAb<IgM>G IgG	SDZ700240	Turbidimetry

IgM

Interleukin 6

Interleukin 6 (IL-6) is a pleiotropic, a-helical, 22-28 kDa phosphorylated and variably glycosylated cytokine secreted by T cells and macrophages. IL-6 is primarily produced at sites of acute and chronic inflammation, where it is secreted into the serum and induces a transcriptional inflammatory response through interleukin 6 receptor, alpha.

Some of its functions include the stimulation of the immune response during infection, induction of fever in autoimmune, infectious and non-infectious diseases, the stimulation of acute phase reactions, differentiation of T cells, proliferation and differentiation of B-cells, the development of blood cells as well as the activation of osteoclasts and osteoporosis and the secretion of vascular endothelium growth factor (VEFG) to increase blood vessel growth and vascular permeability in inflammation. It is important for a short-term defense against infection, injury and inflammation however dysregulation of IL-6 results in disease.

Description	Abbr.	Cat No.	Remarks
Mouse anti-human Interleukin 6 monoclonal antibodies	mAb-IL-6	SDZ7104900	EIA

IL-6

Insulin

Insulin is a peptide hormone produced by beta cells of the pancreatic islets. The human insulin protein is composed of 51 amino acids, and has a molecular mass of 5808 Da. It is a dimer of an A-chain and a B-chain, which are linked together by disulfide bonds.

Insulin is the most important regulator of blood glucose. Insulin testing may be used to diagnose an insulinoma or the cause of hypoglycemia, and to identify insulin resistance, or to monitor the amount of insulin produced by the beta cells in the pancreas (endogenous). A serum insulin test can also be used to determine when a type 2 diabetic might need to start taking insulin to supplement oral medications.

Description	Abbr.	Cat No.	Remarks
Mouse anti-human Insulin monoclonal antibodies	mAb-Ins	SDZ7100300	EIA

Ins

Lipoprotein-associated Phospholipase A_2

Lipoprotein-associated phospholipase A2 (Lp-PLA2), a 45-kDa protein of 441 amino acids, is a phospholipase A2 enzyme that in humans is encoded by the PLA2G7 gene. In the blood Lp-PLA2 travels mainly with low-density lipoprotein (LDL). Less than 20% is associated with high-density lipoprotein HDL. It is an enzyme produced by inflammatory cells and hydrolyzes oxidized phospholipids in LDL.

Lp-PLA2 is involved in the development of atherosclerosis. Some recent studies have shown that Lp-PLA2 is an independent risk marker for cardiovascular disease (CVD), including coronary heart disease (CHD), and ischemic stroke. It is thus used as a marker for cardiac disease, and is useful for Identifying persons at increased risk for coronary heart disease events. Recent guidelines from four major international societies, which include the European Society of Cardiology, the American College of Cardiology, the American Heart Association and the American Society of Endocrinology, have included Lp-PLA2 among the biomarkers through which the measurement is useful for risk stratification of asymptomatic adult patients.

Description	Abbr.	Cat No.	Remarks
Recombinant human Lipoprotein-associated phospholipase A2	Lp-PLA2	SDZ900031	Control
Mouse anti-human Lipoprotein-associated phospholipase A2 monoclonal antibodies	mAb-PLA2	SDZ7100400	EIA / WB

Lp-PLA$_2$

Matrix Metalloproteinase-3

Matrix metallopeptidase 3 (MMP3, also known as stromelysin-1) is a member of the matrix metalloproteinase (MMP) family. It is secreted from the cells as a proenzyme which is activated when cleaved by extracellular proteinases. MMP-3 activation can be achieved in vitro by proteases such as itself, chyrotrypsin, neutrophil elastase and plasma kallikrein, and by mercury compounds.

The active MMP3 is capable of degrades fibronectin, laminin, collagens III, IV, IX, and X, and cartilage proteoglycans. The active enzyme also activates proMMP-1, -8, -9, and -13. It participates in wound repair, progression of atherosclerosis, tissue remodeling and tumor initiation. Endogenous tissue inhibitors of metalloproteinases (TIMPs) are responsible for regulating MMP-3. Any disruption of this system can cause diseases such as arthritis, metastasis, atherosclerosis and tumor growth.

Description	Abbr.	Cat No.	Remarks
Recombinant human Matrix Metalloproteinase 3	MMP-3	SDZ900570	Control

MMP-3

α1-Microglobin

alpha1-Microglobulin (α1-MG) is a 30 kDa glycoprotein with 184 amino acid residues. It is a member of the lipocalin family synthesized by the liver. It may play a role in the regulation of inflammatory processes.

α1-MG appears to act as a heme scavenger, protecting cells and collagen against oxidative damage. It also acts as an immunosuppressant, inhibiting polyclonal lymphocyte activation and dampening granulocyte migration in response to chemokines.

Approximately half of the circulating α1-MG is complexed to IgA. The free form of α1-MG is filtered by the glomerulus and reabsorbed by proximal tubule cells. α1-MG has been found to be a sensitive biomarker for proximal tubular dysfunction. Urinary α1-MG is also a marker of kidney damage in type 2 diabetes.

Description	Abbr.	Cat No.	Remarks
Recombinant human α1-Microglobin	α1-MG	SDZ900390	Control
Rabbit anti-human α1-Microglobin polyclonal antibodies	pAb<α1-MG>RB IgG	SDZ700390	EIA / Latex

α1-MG

β2-Microglobin

β 2-microglobulin(β 2-MG) is a relatively small molecular weight protein, molecular weight of 11.8kD, β 2-MG is a component of MHC class I molecules found expression in all nucleated cells (excludes red blood cells).

The determination of β 2-MG is a sensitive index to diagnose the damage of the proximal convoluted tubule. The blood β 2-MG increases and the urine β 2-MG is normal, mainly due to the decline of glomerular filtration function, which is common in acute nephritis, renal failure and so on. Blood β 2-MG is normal and urine β 2-MG is elevated, mainly due to renal tubular reabsorption function is obviously damaged, found in congenital proximal tubule dysfunction, Fanconi syndrome, kidney transplant rejection. β 2-MG can also be used for the diagnosis of renal allograft survival, diabetic nephropathy, gout, kidney and some malignant tumors.

Description	Abbr.	Cat No.	Remarks
Recombinant human β2-Microglobin	β2-MG	SDZ900041	Control
Goat anti-human β2-Microglobin polyclonal antibodies	pAb<β2-MG>G IgG	SDZ700040	EIA / WB

β2-MG

Mitochondrial Aspartate Aminotransferase

AST is divided into two isozymes based on its location in the cell: cytoplasmic aspartate aminotransferase (c-AST) and mitochondrial aspartate aminotransferase (m-AST). Because m-AST is located in the mitochondria, it is not easy to release into the blood. When the hepatocytes are necrotic, the m-AST is released from the mitochondria, making the AST in the serum higher.

Determination of serum aspartate aminotransferase is helpful to determine whether there is necrosis and damage to the heart and liver cells. The increase of AST is common in acute and chronic severe hepatitis, cirrhosis, liver cirrhosis, myocarditis, myocardial infarction, nephritis, cholangitis, dermatomyositis and pancreatitis.

Description	Abbr.	Cat No.	Remarks
Mitochondrial Aspartate Aminotransferase	mAST	SDZ900221	Control
Rabbit anti-human Cytosolic Aspartate Aminotransferase polyclonal antibodies	pAb<cAST>RB IgG	SDZ700220	EIA / WB

mAST

Myeloperoxidase

Myeloperoxidase (MPO) is a heme protein synthesized in leukocytes neutrophils, monocytes and some subtypes of tissue macrophages. Enzymatically active MPO is a disulfide-linked tetramer that contains two heme groups and two copies each of the heavy and light chains.

MPO constitutes the major component of neutrophil azurophilic granules. MPO has a crucial role to play in destruction of various microorganisms and foreign cells, such as bacteria, fungi, viruses, red cells and malignant and nonmalignant nucleated cells.

MPO catalyzes the production of number of reactive oxidant species (ROS) that influence tissue damage during inflammation. Elevated plasma MPO levels have been associated with a variety of clinical conditions including systemic inflammation, eclampsia, risk of cardiovascular events, vascular endothelial dysfunction, severity of multiple sclerosis, and prospective mortality and oxidative stress during hemodialysis.

Description	Abbr.	Cat No.	Remarks
Recombinant human Myeloperoxidase	MPO	SDZ900470	Control
Mouse anti-human Myeloperoxidase monoclonal antibodies	mAb-MPO	SDZ7104700	EIA/latex

MPO

Myxovirus Resistance Protein A

Myxovirus resistance protein A (MxA, also known as IFI-78K, Interferon-induced GTP-binding protein Mx1, Interferon-induced protein p78, Interferon-inducible protein p78, Interferon-regulated resistance GTP-binding protein MxA, Myxoma resistance protein 1, Myxovirus resistance 1) is a 75-78 kDa guanosine triphosphate (GTP)-metabolizing protein that participates in the cellular antiviral response.

MxA forms homo-dimers, -tetramers and -oligomers, with multimerization suggested to be important for activity. It is induced by type I and type II interferons and antagonizes the replication process of several different RNA and DNA viruses.

Description	Abbr.	Cat No.	Remarks
Recombinant human Myxovirus Resistance Protein A	MxA	SDZ900620	Control

MxA

Neutrophil Gelatinase-associated Lipocalin

NGAL (neutrophil gelatinase-associated lipocalin, also named lipocalin-2) is a small protein expressed in neutrophils and in low levels in kidney, prostate, and epithelia of the respiratory and alimentary tracts. NGAL is involved in innate immunity and also functions as a growth factor.

NGAL is a novel biomarker for diagnosing acute kidney injury (AKI). Renal expression of NGAL is dramatically increased in kidney injury from a variety of causes, and NGAL is released into both urine and plasma. NGAL levels rise sharply from basal levels in response to kidney injury to reach diagnostic levels within a very short time - within 2 hours of the insult, and as much as 24 hours or more before any significant rise in serum creatinine, making NGAL an early and sensitive biomarker of kidney injury. NGAL can also be used as an early diagnosis for procedures such as chronic kidney disease, contrast induced nephropathy, and kidney transplant.

Description	Abbr.	Cat No.	Remarks
Recombinant human Neutrophil Gelatinase-associated Lipocalin	NGAL	SDZ900011	Control
Rabbit anti-human Neutrophil Gelatinase-associated Lipocalin polyclonal antibodies	pAb<NGAL>RB IgG	SDZ700020	EIA/Latex
Mouse anti-human Neutrophil Gelatinase-associated Lipocalin monoclonal antibodies	mAb-NGAL	SDZ7100200	EIA / WB

N-GAL

Prolidase

Prolidase is a manganese requiring homodimeric enzyme with an approximate molecular weight of 54 kDa. Prolidase specifically hydrolyzes dipeptides with a prolyl residue in the carboxy terminus (NH(2)-X-/-Pro-COOH).

Prolidase catalyses the final step of collagen degradation. The enzyme specifically splits imidodipeptides with C-terminal proline or hydroxyproline and supplies free proline for collagen resynthesis. Prolidase is of great importance during collagen turnover, inflammation, tissue fibrosis and skeletal abnormalities.

Prolidase Deficiency (PD) is an inherited autosomal recessive disorder associated with various diseases such as recurrent infections, dysmorphic facial features and variable intellectual disability.

Description	Abbr.	Cat No.	Remarks
Recombinant human Prolidase	PEPD	SDZ900320	Control
Mouse anti-human Prolidase monoclonal antibodies	mAb-PEPD	SDZ7103200	EIA / WB

PEPD

Proprotein Convertase Subtilisin/Kexin type 9

Proprotein convertase subtilisin/kexin type 9 (PCSK9) is a member of the subtilisin-like proprotein convertase family. PCSK9 is highly expressed in the liver, intestine, and kidney. It is initially synthesized as a soluble 74 kDa precursor protein. In the endoplasmic reticulum, it undergoes autocatalytic intramolecular cleavage to generate a 14 kDa pro-domain and a 60 kDa catalytic domain. These two domains remain associated when PCSK9 is secreted outside the cells.

PCSK9 plays a role in cholesterol and fatty acid metabolism. It binds to the epidermal growth factor-like repeat A (EGF-A) domain of the low-density lipoprotein receptor (LDLR) inducing the degradation of LDLR. Serum PCSK9 concentrations have been found to be directly associated with cholesterol levels. Since individuals with loss-of-function PCSK9 mutations have strikingly reduced risk of coronary heart diseases, PCSK9 has become an attractive drug target in recent years.

Description	Abbr.	Cat No.	Remarks
Mouse anti-human Proprotein Convertase Subtilisin/Kexin type 9 monoclonal antibodies	mAb-PCSK9	SDZ7104000	EIA / WB

PCSK9

Prealbumin

Prealbumin (Prealbumin, PA), also called transthyretin (transthyretin), molecular weight 54 Kda, synthesized by liver cells and in electrophoretic separation, often displayed in front of the albumin, the half-life is very short, only about 1.9 days.

Therefore, determination of its concentration in plasma is of higher sensitivity to understanding protein malnutrition, liver dysfunction, and albumin and transferrin. Transthyretin concentration has been shown to be a good indicator of whether or not a malnourished patient will develop refeeding syndrome upon commencement of refeeding, via either the enteral, parenteral or oral routes. In addition to being a sensitive nutritional protein marker, PA decreases in acute inflammation, malignancies, cirrhosis, or nephritis.

Description	Abbr.	Cat No.	Remarks
Recombinant human Prealbumin	PA	SDZ900151	Control
Goat anti-human Prealbumin polyclonal antibodies	pAb<PA>G IgG	SDZ700150	Turbidimetry

PA

Procalcitonin

Procalcitonin (PCT) is a 116 amino acid residue peptide with molecular weight of ~ 13 kDa. It belongs to a group of related proteins including calcitonin gene-related peptides I and II, amylin, adrenomodulin and calcitonin (CAPA peptide family). PCT is produced normally in C-cells of the thyroid glands, and can be produced by several cell types and many organs in response to pro-inflammatory stimuli, in particular by bacterial products.

Procalcitonin (PCT) is used as a new biomarker for sepsis with high diagnostic accuracy. The measurement of PCT for an early and effective diagnosis is recommended in all patients in whom sepsis and a systemic inflammatory response is suspected.

Beyond its value for the diagnosis of sepsis, PCT has also proved to be useful in monitoring the course and severity of the systemic inflammatory response.

Description	Abbr.	Cat No.	Remarks
Recombinant human Procalcitonin	PCT	SDZ900121	Control
Mouse anti-human Procalcitonin monoclonal antibodies	mAb-PCT	SDZ7101200	EIA / WB

PCT

Retinol-binding Proteins

Retinol-binding proteins (RBP) are a family of proteins with diverse functions. They are carrier proteins that bind retinol. Retinol-binding protein-4 (RBP4), a 21-kDa protein synthesized in the liver and adipose tissue. RBP4 is a Lipocalin superfamily molecule that transports vitamin A (retinol) and retinaldehyde in the serum.

RBP is thought to be responsible for the delivery of serum retinol(Vtamin A) to target cell.Since the half-life peried of RBP is much shorter. It can reveal the nutrition state of organs more sensitively, especially the change of the protein metabolism in a short time.It can also check out primary and subclinical malnutrition. On the other hand, the change of RBP can sensitively indicate the function of nephrotubular and the degree of the liver function injuried. It can serve as an index for detecting the development and the results of the discases of kindey and liver, as well as nutritional diseases.

Description	Abbr.	Cat No.	Remarks
Recombinant human Retinol-binding protein 4	RBP4	SDZ900051	Control
Goat anti-human Retinol-binding protein 4 polyclonal antibodies	pAb<RBP4>G IgG	SDZ700050	EIA / WB

RBP4

Tissue Inhibitor of Metalloproteinase-1

Tissue inhibitor of metalloproteinase-1 (TIMP-1) is a 28 kDa glycoprotein belonging to the TIMP family. The proteins in this family are natural inhibitors of the matrix metalloproteinases (MMPs), a group of peptidases involved in degradation of the extracellular matrix.

Structurally, TIMPs contain two domains. The N-terminal domain binds to the active site of mature metalloproteases via a 1:1 non-covalent interaction, blocking access of substrates to the catalytic site. In addition, The C-terminal domain of TIMP-1 and TIMP-2 binds to the hemopexin-like domain of pro-MMP-9 and pro-MMP-2, respectively. The latter binding is essential for the cell surface activation of mMP-2 by mMP-14.

The deregulation of TIMP-1 contributes to various diseases such as inflammation, fibrosis, and cancer. High TIMP-1 expression is strongly associated with poor outcome in virtually all known cancer types. TIMP-1 is upregulated during hepatic fibrogenesis and considered to promote fibrosis in the injured liver by inhibition of matrix metalloproteases (MMP) and degradation of extracellular matrix.

Description	Abbr.	Cat No.	Remarks
Recombinant human TIMP-1	TIMP-1	SDZ900610	Control

TIMP-1

Transferrin

Transferrin is a serum glycoprotein with an approximate molecular weight of 76.5 kDa. Transferrin participates in the transport of iron from the intestine, reticuloendothelial system, and liver parenchymal cells to tissue cells. The transferrin binds to specific cell surface receptors and are internalized by endocytosis. Once inside, the iron is released into the cells and the iron-free transferrin, also referred to as apotransferrin, is exocytosed outside the cell without being degraded.

Determination of transferrin in plasma can help diagnosis and monitor of anemia, as an indicator of protein nutritional status, and diagnosis of atransferrinemia and so on.Urine tranferrin detection can be used for early diagnosis of diabetic nephropathy, primary chronic kidney disease, etc.

Description	Abbr.	Cat No.	Remarks
Human Transferrin	TRF	SDZ900410	Control
Rabbit anti-human Transferrin polyclonal antibodies	pAb<TRF>RB IgG	SDZ700410	EIA / WB
Goat anti-human Transferrin polyclonal antibodies	pAb<TRF>G IgG	SDZ700411	Turbidimetry

TRF

Serum Amyloid A

Serum amyloid A (SAA) proteins are a family of apolipoproteins associated with high-density lipoprotein (HDL) in plasma. Different isoforms of SAA are expressed constitutively (constitutive SAAs) at different levels or in response to inflammatory stimuli (acute phase SAAs).There are four SAA isotypes in humans. SAA1 and SAA2 each consist of 122 amino acids, including signal peptide sequences, and share more than 90% of their amino acid sequences. In addition, SAA3 is a pseudogene, and SAA4 is constitutively expressed at a constant level and is thus known as cSAA. On the other hand, the production of SAA1 and SAA2 by hepatocytes is 100- to 1000-fold upregulated during the acute phase response. In physiological conditions, SAA is present in various forms, including SAA1 and SAA2.

Serum amyloid A (SAA) is also an acute phase marker that responds rapidly. Similar to CRP, levels of acute-phase SAA increase within hours after inflammatory stimulus, and the magnitude of increase may be greater than that of CRP.

Description	Abbr.	Cat No.	Remarks
Recombinant human Serum Amyloid A	SAA	SDZ900201	Control
Rabbit anti-human Serum Amyloid A polyclonal antibodies	pAb<SAA>RB IgG	SDZ700200	EIA/Latex

SAA

Streptavidin

Streptavidin is a homotetrameric 159 residue protein with a globular structure. Each monomer of the protein binds one molecule of the biotin non-covalently with an exceptionally high affinity (Ka~$10^{13}M^{-1}$). Streptavidin is highly thermostable and is resistant to extreme pH, organic solvents, denaturants, detergents, and enzymatic degradation.

Streptavidin is a very efficient and versatile tool for affinity chromatography, immunology and molecular diagnostics.

Description	Abbr.	Cat No.	Remarks
Streptavidin	SA	SDZ900540	EIA

SA

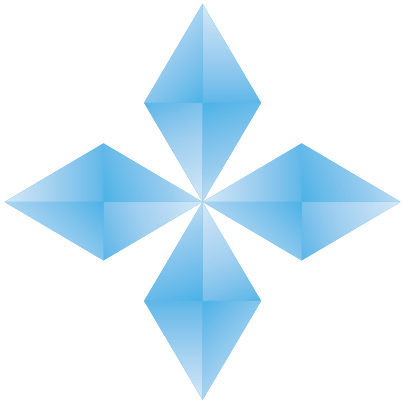
Streptolysin O

Streptolysin is a streptococcal hemolytic exotoxin. Types include streptolysin O (SLO), which is oxygen-labile, and streptolysin S (SLS), which is oxygen-stable.An antibody, antistreptolysin O, can be detected in an antistreptolysin O titre.Streptolysin O is hemolytically active only in a reversibly reduced state, unlike streptolysin S, which is stable in the presence of oxygen. Another difference is that SLO is antigenic, while SLS is not antigenic due to its small size.

Antistreptolysin O titer (ASO titer) is a measure of the blood plasma levels of antistreptolysin O antibodies , used in tests for the diagnosis of a streptococcal infection or indicate a past exposure to streptococci. The ASO titer helps direct antimicrobial treatment and is used to assist in the diagnosis of scarlet fever, rheumatic fever, and post infectious glomerulonephritis.

Description	Abbr.	Cat No.	Remarks
Streptolysin O	SLO	SDZ900020	Antigen
Goat anti-Streptolysin O polyclonal antibodies	pAb<SLO>G IgG	SDZ900021	Control

SLO



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