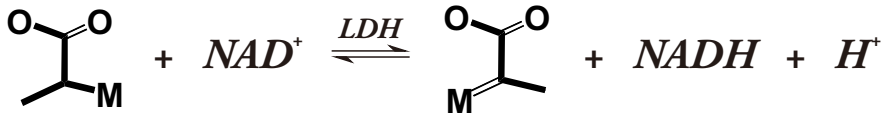
L-LACTATE DEHYDROGENASE

(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

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	{Fig. 1}
Optimum temperature:	45℃	{Fig. 3}
pH Stability:	4.5~10.0 (37℃,1hr)	{Fig. 2}
Thermal stability:	< 50℃ (pH 7.4, 15min)	{Fig. 4}
Inhibitors:	Co^{2+},Cu^{2+},Fe^{3+},Ni^{2+},Zn^{2+},NEM,SDS,Proclin	
Effect of various chemicals:		{Table 1}

Table 1.

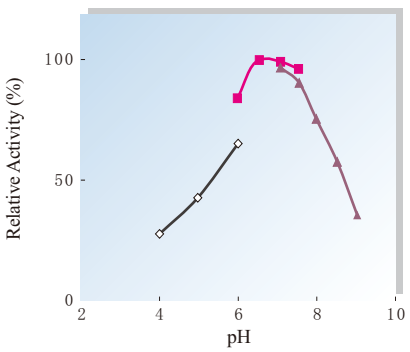
Effect of Various Chemicals on L-LDH

[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%

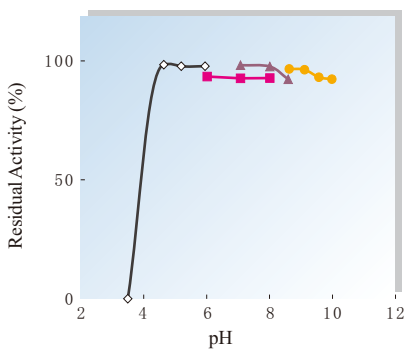
Chemical	Concn. (mM)	Residual activity
BME	2.0	98%
NEM	2.0	79%
EDTA	5.0	102%
NaN_3	20.0	101%
Proclin	0.045%	58%
Na-cholate	0.10%	109%
SDS	0. 05%	0%
Triton X-100	0.10%	113%
Tween 20	0.10%	115%

Fig. 1 pH Activity



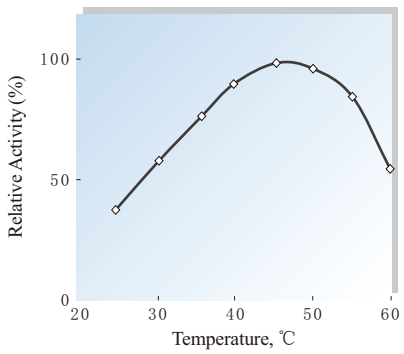
◇ : 100mM citrate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer

Fig. 2 pH Stability



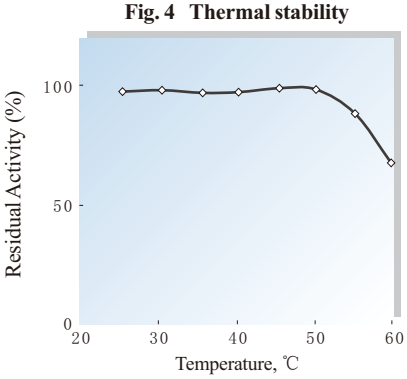
Treatment : 37℃,1hr
◇ : 100mM citrate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM glycine buffer

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