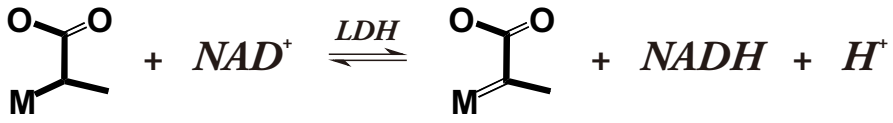
D-LACTATE DEHYDROGENASE

(R)-Lactate:NAD^+ Oxidoreductase

REACTION:



D-Lactate Pyruvate

PRODUCT DESCRIPTION

Catalog No.:	qs50015
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

Molecular weight:	38 kDa (SDS-PAGE)	
Isoelectric point:	5.8	
Michaelis constant:	5.4×10^{-4}M(Pyruvate, pH 7.0)	
Optimum pH:	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.

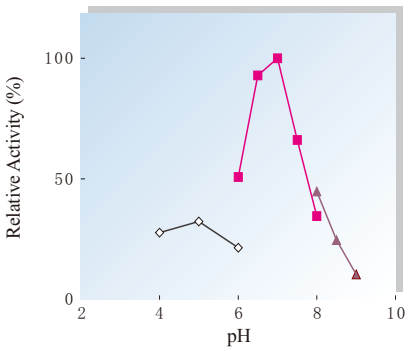
Effect of Various Chemicals on D-LDH

[The enzyme dissolved in 100mM K-phoshate 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%

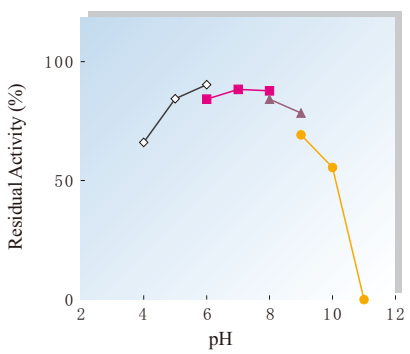
Chemical	Concn. (mM)	Residual activity
NEM	2.0	90%
EDTA	5.0	91%
NaN_3	20.0	92%
Proclin	0.045%	98%
Na-cholate	0.10%	101%
SDS	0. 05%	3%
Triton X-100	0.10%	102%
Tween 20	0.10%	97%
Boric Acid-Borax	2.0	94%

Fig. 1 pH Activity



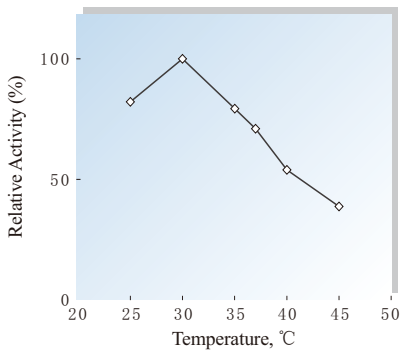
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer

Fig. 2 pH Stability



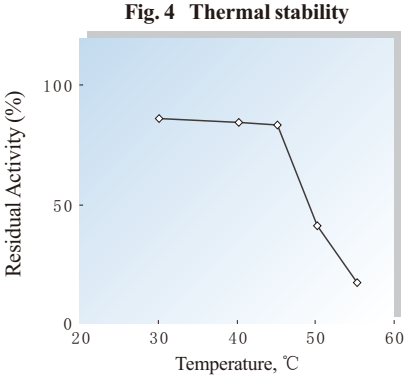
Treatment : 25℃,48hr
◇ : 100mM acetate buffer
■ : 100mM phosphate buffer
▲ : 100mM Tris-HCl buffer
● : 100mM borate buffer

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