SIGNALCHEM

D-LACTATE DEHYDROGENASE

from Microorganism

(R)-Lactate: NAD^+ oxidoreductase (EC 1.1.1.28)

D-Lactate + NAD^+ ⟶ Pyruvate + NADH + H^+

PREPARATION and SPECIFICATION

Appearance	: White amorphous powder, lyophilized	
Activity	: 220U/mg-solid or more	
Contaminants	: GOT and GPT	all ≤5.0×10^{-3}%
	Malate dehydrogenase	≤1.0×10^{-2}%
	NADH oxidase	≤1.0×10^{-3}%
	Myokinase	≤1.0×10^{-2}%
	Pyruvate Kinase	≤1.0×10^{-3}%

PROPERTIES

Stability	: Product shipped on dry ice, but long-term storage should be at –20°C.	
Molecular weight	: 39 kDa	
Isoelectric point	: 6.1	
Michaelis constant	: 6.41×10^{-4}M (Pyruvate, pH 7.0)	
Inhibitors	: Co^{2+}, Fe^{3+}, Cu^{2+}, Hg^{2+}, Ag^{+}, SDS	
Optimum pH	: 7.0	(Fig.1)
Optimum temperature	: 40°C	(Fig.2)
pH stability	: pH 4.5~10.5 (25°C, 20hr)	(Fig.3)
Thermal stability	: below 50°C (pH 7.0,15 min)	(Fig.4)
Effect of various chemicals	: (Table 1)	

UNIT DEFINITION

One unit causes the oxidation of one micromole of NADH per minute at pH 7.0 at 25°C

APPLICATIONS

This enzyme is useful for enzymatic determination of numerous metabolites, e.g., ATP, ADP, glucose, creatinine, pyruvate, lactate and glycerol, and of enzyme activities, e.g., GPT, PK, and CPK when coupled with the related enzymes.

Manufactured in an ISO 9001 certified facility: Suzhou SignalChem Biotechnologies Corp.

Table 1. Effect of Various Chemicals on D-Lactate dehydrogenase

The enzyme was dissolved in 0.05M K-phosphate buffer, pH 7.5 containing 0.1% of BSA (40U/ml) and incubated with each chemical at 25°C for 1hr.

Chemical	Concn.(mM)	Residual activity(%)	Chemical	Concn.(mM)	Residual activity(%)
None	—	100	BME	2	91
$CaCl_2$	2	94	Hydroxylamine	2	93
$MgSO_4$	2	95	EDTA	5	95
$ZnSO_4$	2	86	NaF	20	90
$NiCl_2$	2	89	NaN_3	20	96
$CoCl_2$	2	58	Borate	50	89
$MnCl_2$	2	96	Proclin-300	0.045% (v/v)	90
$FeCl_3$	2	63	SDS	0.05%	47
$CuSO_4$	2	78	Na-Cholate	0.1%	97
$AgNO_3$	2	6	Tween-20	0.1% (v/v)	96
$HgSO_4$	2	1	Triton X-100	0.1% (v/v)	97
NEM	2	80	Span-20	0.1% (v/v)	94
IAA	2	89	Brij-35	0.1%	94

Fig.1. pH Activity

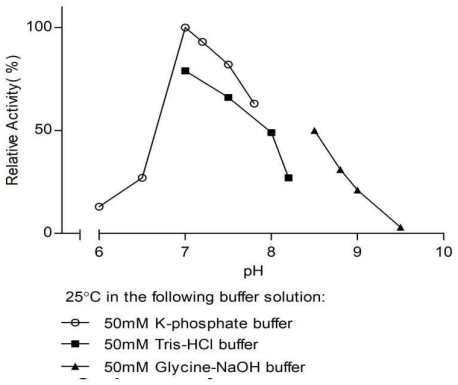
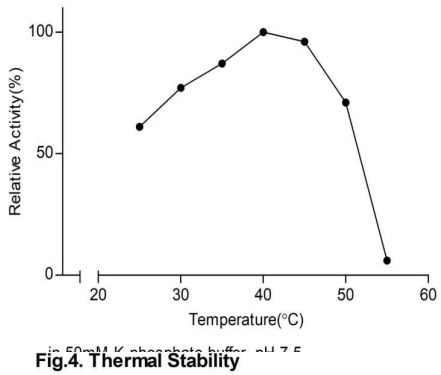


Fig.2. Temperature Activity



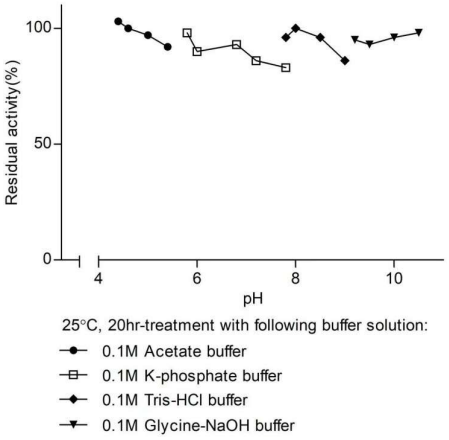


Fig.4. Thermal Stability