

MALATE DEHYDROGENASE

L-Malate:NAD⁺ oxidoreductase

REACTION:



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°C
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°C.

PROPERTIES

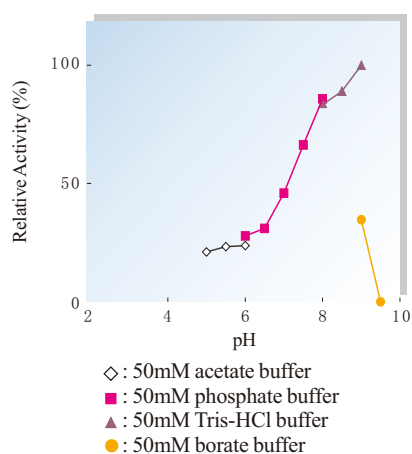
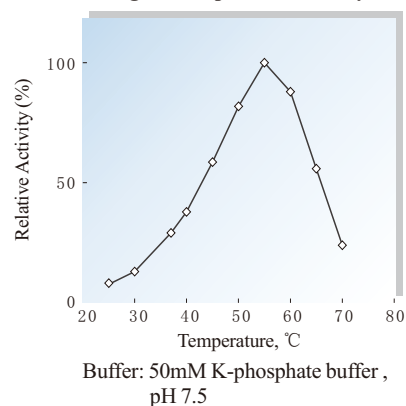
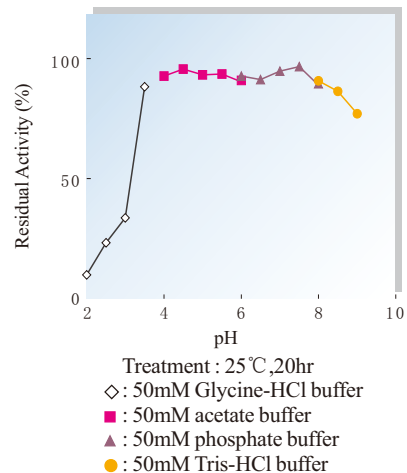
Molecular weight:	34 kDa (SDS-PAGE)	
Isoelectric point:	4.9	
Michaelis constant:	2.5 × 10 ⁻⁵ M (NADH) 2.0 × 10 ⁻⁵ M (Oxaloacetate)	
Optimum pH:	9.0	{Fig. 1}
Optimum temperature:	55°C	{Fig. 3}
pH Stability:	4.0~8.0(25°C,20hr)	{Fig. 2}
Thermal stability:	< 60°C (pH7.5, 15min)	{Fig. 4}
Inhibitors:	Cu ²⁺ , 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°C 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%
BME	2.0	111%

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

Fig. 1 pH Activity**Fig. 3 Temperature activity****Fig. 2 pH Stability****Fig. 4 Thermal stability**