

D-3-HYDROXYBUTYRATE DEHYDROGENASE

D-3-Hydroxybutyrate:NAD⁺ oxidoreductase

REACTION:



PRODUCT DESCRIPTION

Catalog No.:	qs50014
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.30
CAS Number:	9028-38-0
Storage temperature:	-20°C
Specific activity:	≥500U/mg protein
Unit definition:	One unit converts one micromole of 3-Hydroxybutyrate to acetoacetate per min at pH 8.5 at 37°C.

PROPERTIES

Molecular weight:	27.5 kDa (SDS-PAGE)	
Isoelectric point:	7.25	
Michaelis constant:	2.1 × 10 ⁻³ M (D-3-Hydroxybutyrate)	
Optimum pH:	8.0	{Fig. 1}
Optimum temperature:	60°C	{Fig. 3}
pH Stability:	7.0~10.0 (25°C, 24hr)	{Fig. 2}
Thermal stability:	< 37°C (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°C 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%
Na-cholate	0.10%	119%
SDS	0.05%	0%
Triton X-100	0.10%	113%
Tween 20	0.10%	112%
Boric Acid-Borax	2.0	106%

