北京奇松生物科技有限公司
http://www.shiyanshiji.com

gersion

GLUTAMATE DEHYDROGENASE

L-Glutamate:NAD^+ oxidoreductase

REACTION:

$$L\text{-}Glutamate + H_2O + NAD^+ \overset{GLDH}{\rightleftharpoons} 2\text{-}Oxoglutarate + NADH + NH_3 + H^+$$

PRODUCT DESCRIPTION

Catalog No.:	qs50028
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.4.1.2
CAS Number:	9001-46-1
Storage temperature:	-20℃
Specific activity:	≥ 400U/mg protein
Unit definition:	One unit will convert one micromole of α-ketoglutarate to L-glutamate per min at pH 8.3 at 30℃.

PROPERTIES

Molecular weight:	260 kDa (Gel filtration)	
Isoelectric point:	5.6	
Michaelis constant:	9.5×10^{-3}M (NH_3)	
	5.0×10^{-3}M (α-Ketoglutarate)	
	8.4×10^{-5}M (NADH)	
Optimum pH:	8.5(α-KG→L-Glu)	{Fig. 1}
Optimum temperature:	45℃	{Fig. 3}
pH Stability:	5.0~11.0 (25℃, 20hr)	{Fig. 2}
Thermal stability:	< 60℃ (pH 8.3, 10min)	{Fig. 4}
Inhibitors:	Co^{2+}, Fe^{3+}, NEM, Proclin, SDS	
Effect of various chemicals:		{Table 1}

Table 1.

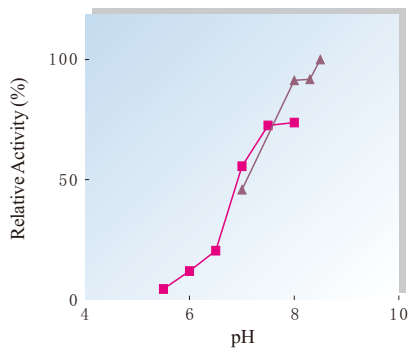
Effect of Various Chemicals on GLDH

[The enzyme dissolved in 100mM Tris-HCl buffer, pH 8.0 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	97%
$CoCl_2$	2.0	82%
$CuSO_4$	2.0	106%
$FeCl_3$	2.0	19%
$MgSO_4$	2.0	97%
$MnSO_4$	2.0	99%
$NiCl_2$	2.0	86%
$ZnSO_4$	2.0	86%
BME	2.0	106%

Chemical	Concn. (mM)	Residual activity
NEM	2.0	78%
EDTA	5.0	93%
NaN_3	20.0	98%
Proclin	0.045%	25%
Na-cholate	0.10%	104%
SDS	0. 05%	3%
Triton X-100	0.10%	110%
Tween 20	0.10%	108%
Boric Acid-Borax	2.0	90%

Fig. 1 pH Activity

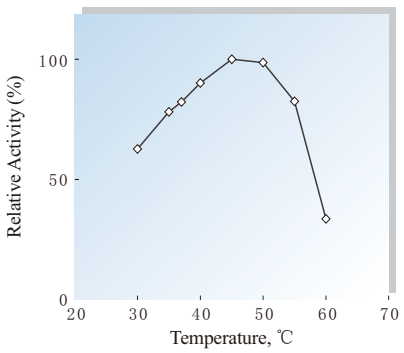


(α-Ketoglutarate →L-glutamate)

■ : 50mM phosphate buffer

▲ : 50mM Tris-HCl buffer

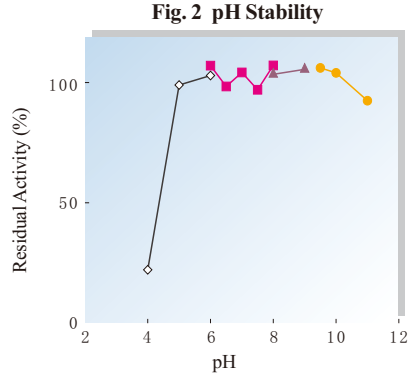
Fig. 3 Temperature activity



(α-Ketoglutarate →L-glutamate)

Buffer: 100mM Tris-HCl buffer , pH 8.3

Fig. 2 pH Stability



Treatment : 25℃,20hr

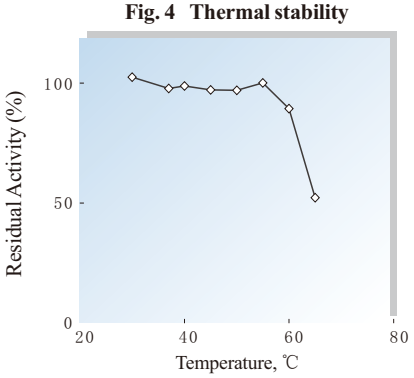
◇ : 50mM acetate buffer

■ : 50mM phosphate buffer

▲ : 50mM Tris-HCl buffer

● : 50mM borate buffer

Fig. 4 Thermal stability



Treatment: 100mM Tris-HCl buffer , pH 8.3, 10min