L-Glutamic Dehydrogenase (NADP)

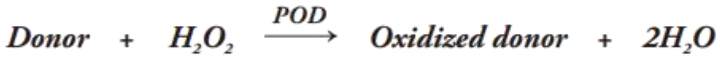
R1507821

Store at 2-8℃ long term (12 months). Upon receipt, it is recommended to aliquot.

Product Introduction

Glutamate dehydrogenase (NADP) is a biochemical reagent that can be used as a biological material or organic compound for life science related research.

Reaction



Product description

Appearance:	Colorless transparent liquid
Source:	Microorganism
Enzyme Commission Number:	EC 1.4.1.4
CAS Number:	9029-11-2
Storage temperature:	2-8℃
Specific activity:	⩾400 U/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

Stability:	Stable at 2-8℃ for at least one year	
Molecular weight:	51kDa (SDS-PAGE)	
Isoelectric point:	4.6	
Michaelais constant:	1.7×10^{-3}M (NH_4)1.1×10^{-3}M (α-Ketoglutarate)3.0×10^{-5}M (NADPH)	
Optimum pH:	8.3	[Fig. 1]
Optimum temperature:	55℃-60℃	[Fig. 3]
pH Stability:	6.0-9.5 (25℃, 20hr)	[Fig. 2]
Thermal stability:	<60℃ (pH7.4, 10min)	[Fig. 4]
Inhibitors:	Ca^{2+}, Fe^{2+}, Mn^{2+}, Zn^{2+}, NEM, Proclin, SDS	
Effect of various chemicals:		[Table 1]

Table 1.

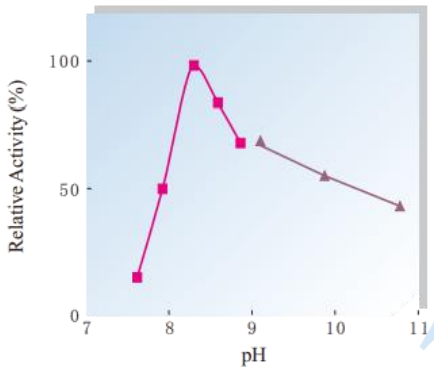
Effect of Various Chemicals on GLDH

[The enzyme dissolved in 50mM 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	14%
$CoCl_2$	2.0	99%
$CuSO_4$	2.0	96%
$FeCl_3$	2.0	54%
$MgSO_4$	2.0	109%
$MnSO_4$	2.0	41%
$NiCl_2$	2.0	97%
$ZnSO_4$	2.0	50%
BME	2.0	96%

Chemical	Concn. (mM)	Residual activity
NEM	2.0	66%
EDTA	5.0	103%
NaN_3	20.0	98%
Proclin	0.045%	4%
Boric Acid-Borax	2.0	101%
Na-cholate	0.10%	99%
SDS	0.05%	5%
Triton X-100	0.10%	96%
Tween 20	0.10%	101%

Fig. 1 pH Activity

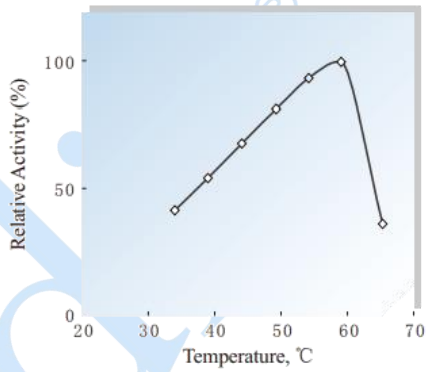


(α -Ketoglutarate →L-glutamate)

■ : 100mM Tris-HCl buffer

▲ : 100mM Glycine-NaOH buffer

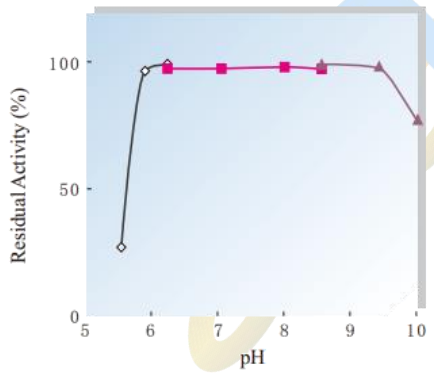
Fig. 3 Temperature activity



(α -Ketoglutarate →L-glutamate)

Buffer: 100mM Tris-HCl buffer , pH 8.3

Fig. 2 pH Stability



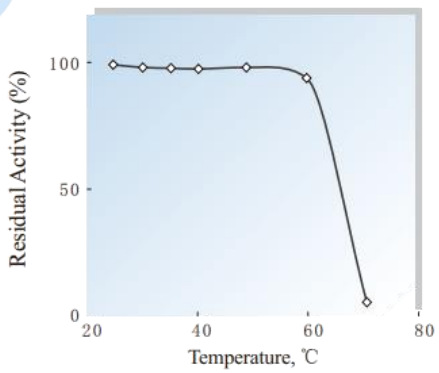
Treatment : 25℃,20hr

◇: 100mM acetate buffer

■ : 100mM KH_2PO_4 buffer

▲ : 100mM Glycine-NaOH buffer

Fig. 4 Thermal stability



Treatment: 100mM Tris-HCl buffer , pH 7.4, 10min