Recombinant Glutaminase (GLTA)

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Storage temperature: -20℃. Avoid freeze/thaw cycle. Store in the dark. Desiccated.

Introduction:

Glutaminase catalyzes the conversion of glutamine to glutamate. Glutaminase is an amidohydrolase enzyme that generates glutamate from glutamine. Glutaminase has tissue-specific isoenzymes. Glutaminase has an important role in glial cells.

Source: Microorganism	
Isoelectric point: 4.7	
Michaelis constant: 1.6×10^{-2} M (L-Glutamine)	
Optimum pH: 6.0	Fig. 1
Optimum temperature: 20~60℃	Fig. 3
pH Stability: 4.0~7.5 (37℃, 20hr)	Fig. 2
Thermal stability: <45℃ (pH 5.0, 10min)	Fig. 4
Inhibitors: Cu^{2+}, Fe^{3+}, EDTA, Proclin, Na-cholate, SDS, Triton X-100	
Effect of various chemicals:	Table 1

Reaction:

Glutamine *Glutamic acid*

Table 1.

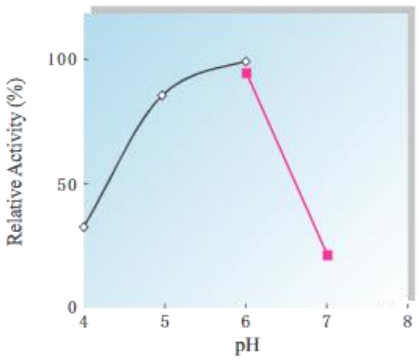
Effect of Various Chemicals on GLTA

[The enzyme dissolved in 50mM Na-acetate buffer, pH 5.0 (20U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	98%
$CoCl_2$	2.0	91%
$CuSO_4$	2.0	1%
$FeCl_3$	2.0	7%
$MgSO_4$	2.0	98%
$MnSO_4$	2.0	99%
$NiCl_2$	2.0	89%
$ZnSO_4$	2.0	92%
$K_4Fe(CN)_6$	2.0	91%

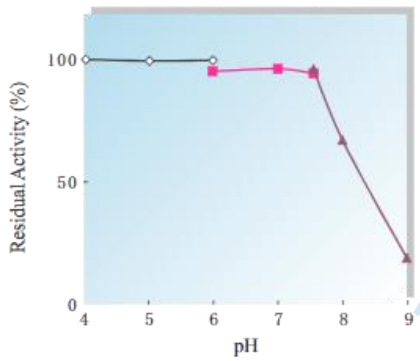
Chemical	Concn. (mM)	Residual activity
BME	2.0	105%
NEM	2.0	94%
EDTA	5.0	67%
NaN_3	20.0	97%
Proclin	0.045%	4%
Na-cholate	0.10%	2%
SDS	0.05%	1%
Triton X-100	0.10%	60%
Tween 20	0.10%	111%

Fig. 1 pH Activity



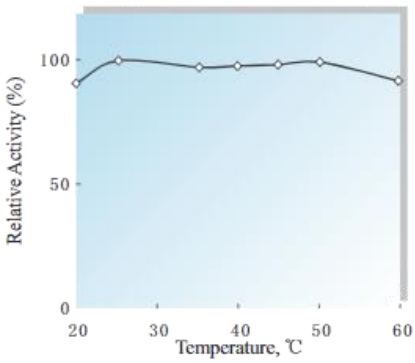
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer

Fig. 2 pH Stability



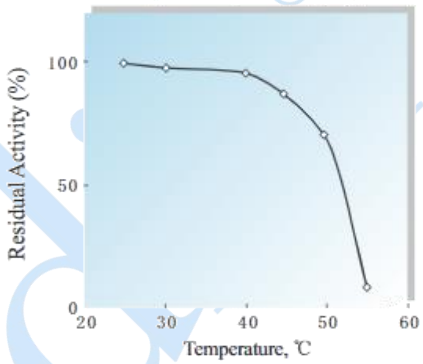
Treatment : 37℃,20hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer

Fig. 3 Temperature activity



Buffer: 50mM acetate buffer , pH5.0

Fig. 4 Thermal stability



Treatment: 50mM K-phosphate buffer, pH5.0, 10min