N-ACETYLNEURAMINIC ACID ALDOLASE

REACTION:



PRODUCT DESCRIPTION

Catalog No.:	SDZ500371
Appearance:	Light yellowish amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 4.1.3.3
CAS Number:	9027-60-5
Storage temperature:	-20℃
Specific activity:	⩾ 45U/mg protein
Unit definition:	One unit will convert one micromole of N-Acetylneuraminate to N-Acetyl-D-mannosamine per minute at pH 7.5 at 37℃.

PROPERTIES

Molecular weight:	33 kDa (SDS-PAGE)	
Isoelectric point:	6.4	
Michaelis constant:	2.5×10^{-3} M(N-Acetylneuraminic acid)	
Optimum pH:	7.5-8.0	{Fig. 1}
Optimum temperature:	50℃	{Fig. 3}
pH Stability:	5.0~9.5(25℃, 25hr)	{Fig. 2}
Thermal stability:	< 65℃ (pH 7.5, 10min)	{Fig. 4}
Inhibitors:	Co^{2+},Cu^{2+},Zn^{2+},NEM,Proclin	
Effect of various chemicals:		{Table 1}

Table 1.

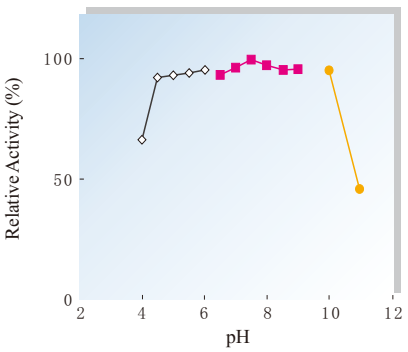
Effect of Various Chemicals on NAL

[The enzyme dissolved in 50mM K-phoshate buffer, pH 7.5 (10U/ml) was incubated with each chemical at 37℃ for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
$CaCl_2$	2.0	99%
$CoCl_2$	2.0	46%
$CuSO_4$	2.0	3%
$FeCl_3$	2.0	97%
$MgSO_4$	2.0	97%
$MnSO_4$	2.0	98%
$NiCl_2$	2.0	91%
$ZnSO_4$	2.0	41%
BME	2.0	94%

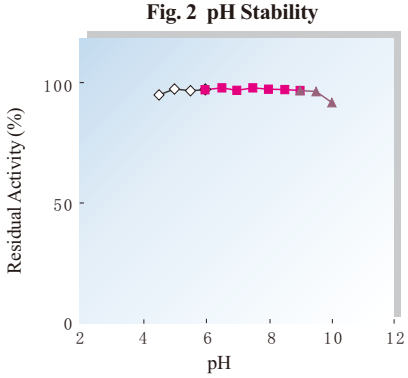
Chemical	Concn. (mM)	Residual activity
NEM	2.0	20%
EDTA	5.0	102%
NaN_3	20.0	101%
Proclin	0.045%	1%
Boric Acid-Borax	2.0	94%
Na-cholate	0.10%	99%
SDS	0. 05%	100%
Triton X-100	0.10%	95%
Tween 20	0.10%	96%

Fig. 1 pH Activity



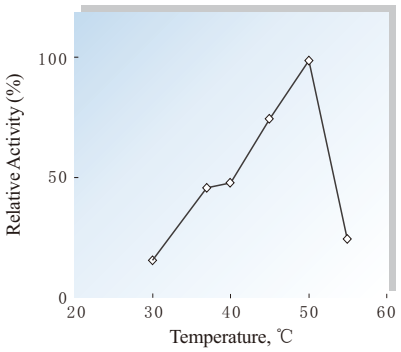
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
● : 50mM Glycine-NaOH buffer

Fig. 2 pH Stability



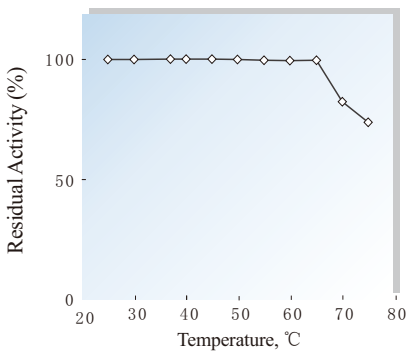
Treatment : 25℃, 25hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM borate buffer

Fig. 3 Temperature activity



Buffer: 50mM K-phosphate buffer , pH 7.5

Fig. 4 Thermal stability



Treatment: 50mM K-phosphate buffer, pH 7.5, 10min