UREASE

Urea amidohydrolase

REACTION:

$$(NH_2)_2CO + H_2O \xrightarrow{URH} 2NH_3 + CO_2$$

PRODUCT DESCRIPTION

Catalog No.:	qs50044
Appearance:	White amorphous powder
Source:	Jack Bean
Enzyme Commission Number:	EC 3.5.1.5
CAS Number:	9002-13-5
Storage temperature:	-20℃
Specific activity:	≥ 2000U/mg protein
Unit definition:	One unit hydrolyze one micromole of urea per minute at pH 8.0 at 37℃.

PROPERTIES

Molecular weight:	480 kDa (Gel filtration)	
Isoelectric point:	5.1	
Michaelis constant:	3.7×10^{-3}M (Urea)	
Optimum pH:	7.5	{Fig. 1}
Optimum temperature:	55℃	{Fig. 3}
pH Stability:	5.0~10.0 (30℃, 17hr)	{Fig. 2}
Thermal stability:	< 55℃ (pH 8.0, 1hr)	{Fig. 4}
Inhibitors:	Cu^{2+},Zn^{2+}	
Effect of various chemicals:		{Table 1}

Table 1.

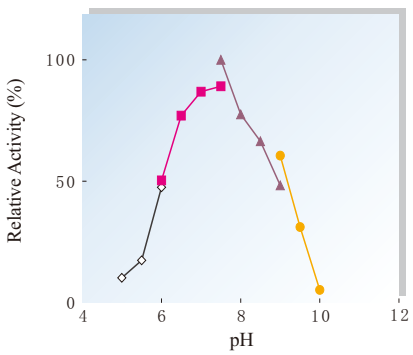
Effect of Various Chemicals on URH

[The enzyme dissolved in 50mM Tris-HCl 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	101%
$CuSO_4$	2.0	6%
$MgSO_4$	2.0	102%
$MnSO_4$	2.0	94%
$NaCO_3$	10.0	100%

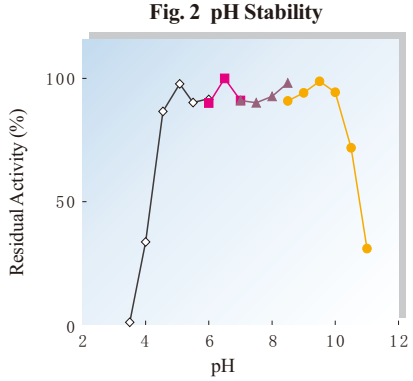
Chemical	Concn. (mM)	Residual activity
NaCl	10.0	106%
Na_2HPO_4	10.0	106%
$ZnSO_4$	2.0	59%
CH_3COONa	10.0	103%
Sodium Citrate	10.0	103%
BME	2.0	96%

Fig. 1 pH Activity



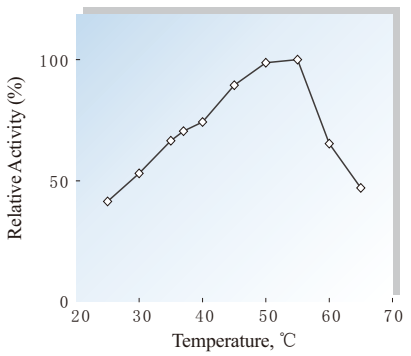
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM glycine-NaOH buffer

Fig. 2 pH Stability



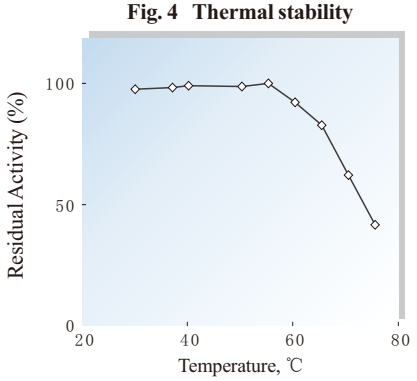
Treatment : 30℃, 17hr
◇ : 50mM acetate buffer
■ : 50mM phosphate buffer
▲ : 50mM Tris-HCl buffer
● : 50mM glycine-NaOH buffer

Fig. 3 Temperature activity



Buffer: 50mM Tris-HCl buffer , pH 8.0

Fig. 4 Thermal stability



Treatment: 50mM Tris-HCl buffer, pH 8.0, 1hr