

SPECIFICATION SHEET

Product Name: Cystathionine-β-Synthase
Catalog # CY01D1-E311H

Product Description: Cystathionine-β-synthase is a diagnostic grade reagent from a microorganism host. This enzyme is useful for enzymatic determination of L-homocysteine when coupled with cystathionine β-lyase and lactate dehydrogenase in clinical analysis.

EC 4.2.1.22

Storage and Stability: Product can be stored at 2~8°C for transportation process up to ten days but long-term storage should be at -20°C.

Principle:

L-serine + L-homocysteine $\xrightarrow{\text{Cystathionine-}\beta\text{-synthase}}$ L-cystathionine + H₂O

Unit Definition	: One unit causes the formation of one micromole of cystathionine per minute at pH 8.0 and 37°C	
Appearance	: Yellowish amorphous powder, lyophilized	
Activity	: ≥4 U/mg solid	
Molecular Weight	: 40 kDa	
Isoelectric Point	: 5.91	
Michaelis Constant	: 8.28×10^{-5} M (L-Homocysteine)	
Inhibitors	: Fe ³⁺ , Zn ²⁺ , Hg ²⁺ , SDS	
Optimum pH	: 8.0	(Figure 1)
Optimum Temperature	: 45°C	(Figure 2)
pH Stability	: pH 6.5–10.0 (25°C, 16 hr)	(Figure 3)
Thermal Stability	: Below 45°C (pH 8.0, 30 min)	(Figure 4)
Effect of Various Chemicals	: (Table 1)	

Table 1. Effect of Various Chemicals on Cystathionine-β-synthase

The enzyme dissolved in 50 mM Tris-HCl buffer, pH 8.0 (ca.1 U/mL) was incubated with each chemical at 37°C for 2 hr.

Chemical	Conc. (mM)	Residual activity (%)	Chemical	Conc. (mM)	Residual activity (%)
None	—	100	BME	2	85
CaCl ₂	2	86	Hydroxylamine	2	0
MgSO ₄	2	87	EDTA	5	86
ZnSO ₄	2	19	NaF	20	87
NiCl ₂	2	73	NaN ₃	20	63
CoCl ₂	2	72	Proclin-300	0.045% (v/v)	86
MnCl ₂	2	79	SDS	0.05% (w/v)	0
FeCl ₃	2	30	Na-Cholate	0.1% (w/v)	118
CuSO ₄	2	80	Tween-20	0.1% (v/v)	124
AgNO ₃	2	68	Triton X-100	0.1% (v/v)	123
HgSO ₄	2	0	Span-20	0.1% (v/v)	114
NEM	2	76	Brij-35	0.1% (w/v)	124
IAA	2	90			

Fig.1. pH-Activity

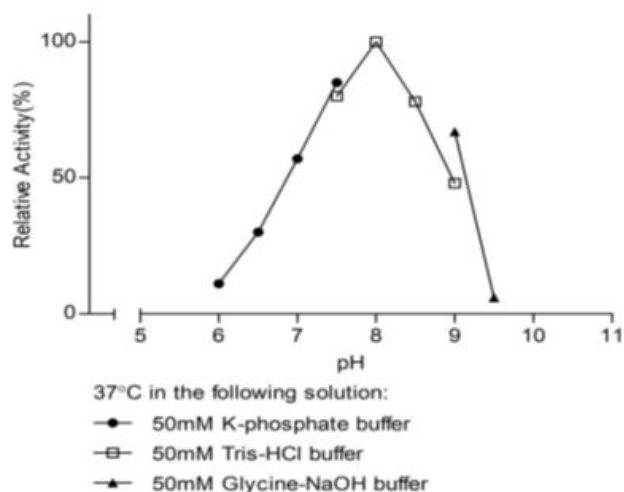


Fig.2. Temperature Activity

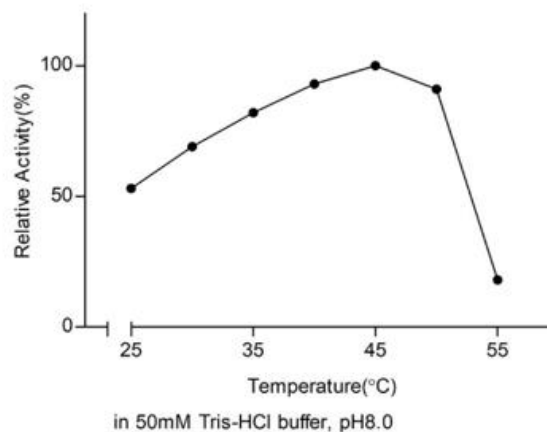


Fig.3. pH Stability

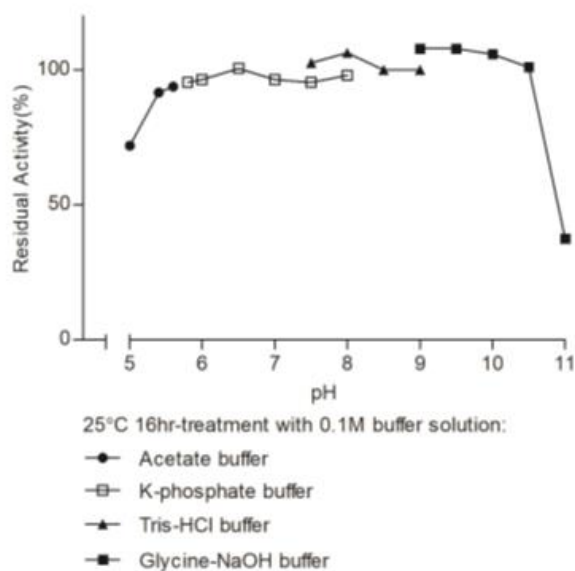


Fig.4. Thermal Stability

