

Glutamine synthetase

ORIGIN: FROM MICROORGANISM

CAT#: GLU-70-1131

EC#: 6.3.1.2

SPECIFICATIONS

Appearance: white to light yellow lyophilizate

Activity: ≥ 15.0 U/mg lyophilizate

ASSAY PRINCIPLE



The appearance of phosphate is measured spectrophotometrically at 660 nm.

APPLICATION

The enzyme is useful for the determination of ammonia and ATP in clinical analysis.

UNIT DEFINITION

One unit (U) is defined as the amount of enzyme which produces 1 μmol of phosphate per min at 37°C and pH 7.0 under the assay conditions.

CHARACTERISTICS

Molecular weight: ca. 900 kDa (gel filtration)

Structure: 57 kDa (SDS-PAGE)

Isoelectric point: 6.5

Michaelis constant: 1.5×10^{-2} M (L-glutamate)

1.3×10^{-4} M (ammonia)

8.7×10^{-4} M (ATP)

pH Optimum: 7.0

pH Stability: 6.5–9.5

Optimum temperature: 60°C

Thermal stability: below 40°C

Inhibitors: methionine sulfoximine, carbamyl phosphate

Activators: Mg^{2+} , Mn^{2+}

Stabilizers: Sucrose

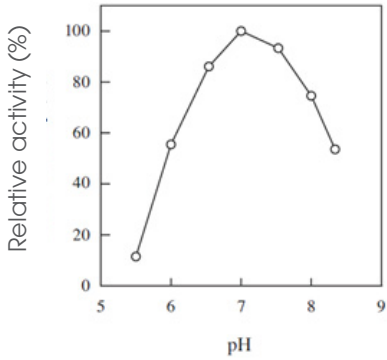
Specificity: L-glutamate (100), d-glutamate (0.8)

NH_3 (100), NH_2OH (12)

ATP (100), GTP (2.5)

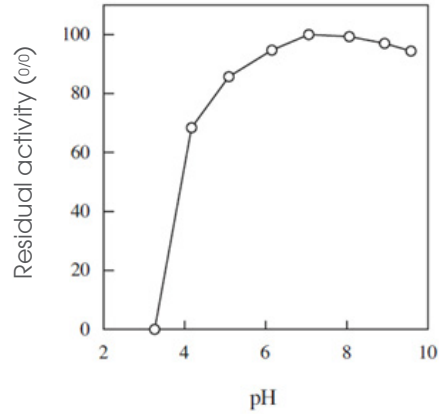
Glutamine synthetase

Figure -1 pH Optimum



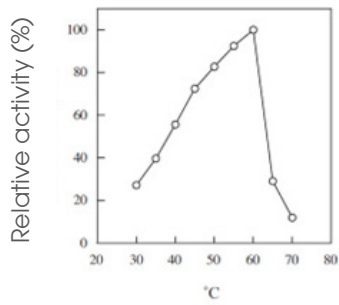
Buffer: 50 mM Tris-imidazole-acetate buffer

Figure -2 pH Stability



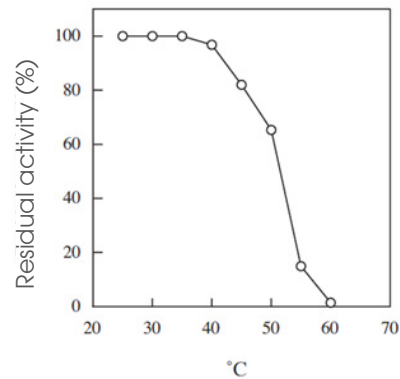
Treatment: 50 mM Tris-imidazole-acetate buffer, 5°C, 3 days

Figure -3 Optimum temperature



Buffer: 50 mM imidazole-HCl buffer, pH 7.0

Figure -4 Thermal stability



Treatment: 50 mM imidazole-HCl buffer, pH 7.0, 10 min

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