Creative Enzymes®

Native Glutamine Synthetase from Microorganism

Cat. No. DIA-411

Lot. No. (See product label)

Introduction

Description	Glutamine synthetase (GS) (EC 6.3.1.2) is an enzyme that plays an essential role in the metabolism of nitrogen by catalyzing the condensation of glutamate and ammonia to form glutamine: Glutamate + ATP + NH3 → Glutamine + ADP + phosphate. Glutamine Synthetase uses ammonia produced by nitrate reduction, amino acid degradation, and photorespiration. The amide group of glutamate is a nitrogen source for the synthesis of glutamine pathway metabolites.
Synonyms	Glutamine synthetase; GS; EC 6.3.1.2; Glutamate-ammonia ligase

Product Information

Source	Microorganism
Appearance	Light yellow lyophilizate
EC Number	EC 6.3.1.2
CAS No.	9023-70-5
Molecular Weight	ca. 900 kDa
Activity	> 7 U/mg lyophilizate
Contaminants	catalase < 0.5%
Isoelectric point	6.5
pH Stability	6.5–9.5
Optimum pH	7
Thermal stability	below 40°C
Optimum temperature	60°C
Michaelis Constant	1.5 x 10^-2 M (L-glutamate) 1.3 x 10^-4 M (ammonia) 8.7 x 10^-4 M (ATP)
Structure	57 kDa (SDS-PAGE)
Specificity	L-glutamate (100), D-glutamate (0.8), NH3 (100), NH2OH (12), ATP (100), GTP (2.5)
Activators	Mg2+, Mn2+
Inhibitors	methionine sulfoximine, carbamyl phosphate
Stabilizers	Sucrose
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.

Storage and Shipping Information

Storage	at -20°C

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