

## 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 + NH<sub>3</sub> → 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

<b>Source</b>	Microorganism
<b>Appearance</b>	Light yellow lyophilizate
<b>EC Number</b>	EC 6.3.1.2
<b>CAS No.</b>	9023-70-5
<b>Molecular Weight</b>	ca. 900 kDa
<b>Activity</b>	> 7 U/mg lyophilizate
<b>Contaminants</b>	catalase < 0.5%
<b>Isoelectric point</b>	6.5
<b>pH Stability</b>	6.5–9.5
<b>Optimum pH</b>	7
<b>Thermal stability</b>	below 40°C
<b>Optimum temperature</b>	60°C
<b>Michaelis Constant</b>	1.5 x 10 <sup>-2</sup> M (L-glutamate) 1.3 x 10 <sup>-4</sup> M (ammonia) 8.7 x 10 <sup>-4</sup> M (ATP)
<b>Structure</b>	57 kDa (SDS-PAGE)
<b>Specificity</b>	L-glutamate (100), D-glutamate (0.8), NH <sub>3</sub> (100), NH <sub>2</sub> OH (12), ATP (100), GTP (2.5)
<b>Activators</b>	Mg <sup>2+</sup> , Mn <sup>2+</sup>
<b>Inhibitors</b>	methionine sulfoximine, carbamyl phosphate
<b>Stabilizers</b>	Sucrose
<b>Unit Definition</b>	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