

glutamate synthase (NADPH)

Cat. No. EXWM-1446

Lot. No. (See product label)

Introduction

Description

Binds FMN, FAD, 2 [4Fe-4S] clusters and 1 [3Fe-4S] cluster. The reaction takes place in the opposite direction to that shown. The protein is composed of two subunits, α and β . The α subunit is composed of two domains, one hydrolysing L-glutamine to NH_3 and L-glutamate (cf. EC 3.5.1.2, glutaminase), the other combining the produced NH_3 with 2-oxoglutarate to produce a second molecule of L-glutamate (cf. EC 1.4.1.4, glutamate dehydrogenase [NADP+]). The β subunit transfers electrons to the cosubstrate. The NH_3 is channeled through a 31 Å channel in the active protein. In the absence of the β subunit, coupling between the two domains of the α subunit is compromised and some ammonium can be produced. In the intact $\alpha\beta$ complex, ammonia production only takes place as part of the overall reaction.

Synonyms

glutamate (reduced nicotinamide adenine dinucleotide phosphate) synthase; L-glutamate synthase; L-glutamate synthetase; glutamate synthetase (NADP); NADPH-dependent glutamate synthase; glutamine-ketoglutaric aminotransferase; NADPH-glutamate synthase; NADPH-linked glutamate synthase; glutamine amide-2-oxoglutarate aminotransferase (oxidoreductase, NADP); L-glutamine:2-oxoglutarate aminotransferase, NADPH oxidizing; GOGAT

Product Information

Form

Liquid or lyophilized powder

EC Number

EC 1.4.1.13

CAS No.

37213-53-9

Reaction

$2 \text{ L-glutamate} + \text{NADP}^+ = \text{L-glutamine} + 2\text{-oxoglutarate} + \text{NADPH} + \text{H}^+$ (overall reaction); (1a) $\text{L-glutamate} + \text{NH}_3 = \text{L-glutamine} + \text{H}_2\text{O}$; (1b) $\text{L-glutamate} + \text{NADP}^+ + \text{H}_2\text{O} = \text{NH}_3 + 2\text{-oxoglutarate} + \text{NADPH} + \text{H}^+$

Notes

This item requires custom production and lead time is between 5-9 weeks. We can custom produce according to your specifications.

Storage and Shipping Information

Storage

Store it at +4 °C for short term. For long term storage, store it at -20 °C~-80 °C.