Creative Enzymes®

carbamoyl-phosphate synthase (ammonia)

Cat. No. EXWM-5785

Lot. No. (See product label)

Introduction

Description The enzyme catalyses the first committed step in the urea cycle. The reaction proceeds via three separate chemical reactions: phosphorylation of hydrogencarbonate to carboxyphosphate; a nucleophilic attack of ammonia on carboxyphosphate yielding carbamate; and the phosphorylation of carbamate forming carbamoyl phosphate. Two moles of ATP are utilized for the synthesis of one molecule of carbamyl phosphate, making the reaction essentially irreversible. The enzyme requires the allosteric activator N-acetyl-L-glutamate. cf. EC 6.3.5.5, carbamoyl-phosphate synthase (glutamine-hydrolysing).

Synonyms carbon-dioxide-ammonia ligase; carbamoylphosphate synthase; carbamylphosphate synthetase; carbamoylphosphate synthase (ammonia); carbamoylphosphate synthetase; carbamylphosphate synthetase I; CPSI (gene name); carbon-dioxide:ammonia ligase (ADP-forming, carbamate-phosphorylating)

Product Information

Form Liquid or lyophilized powder

EC Number EC 6.3.4.16

CAS No. 9026-23-7

Reaction 2 ATP + NH3 + hydrogencarbonate = 2 ADP + phosphate + carbamoyl phosphate (overall reaction); (1a) ATP + hydrogencarbonate = ADP + carboxyphosphate; (1b) NH3 + carboxyphosphate = carbamate + phosphate; (1c) ATP + carbamate = ADP + carbamoyl phosphate

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 ℃ for short term. For long term storage, store it at -20 ℃~-80 ℃.