Creative Enzymes®

deoxyhypusine synthase

Cat. No. EXWM-2782

Lot. No. (See product label)

Introduction

Description	The eukaryotic initiation factor eIF5A contains a hypusine residue that is essential for activity. This enzyme catalyses the first reaction of hypusine formation from one specific lysine residue of the eIF5A precursor. The reaction occurs in four steps: NAD+-dependent dehydrogenation of spermidine (1a), formation of an enzyme-imine intermediate by transfer of the 4-aminobutylidene group from dehydrospermidine to the active site lysine residue (Lys329 for the human enzyme; 1b), transfer of the same 4-aminobutylidene group from the enzyme intermediate to the e1F5A precursor (1c), reduction of the e1F5A-imine intermediate to form a deoxyhypusine residue (1d). Hence the overall reaction is transfer of a 4-aminobutyl group. For the plant enzyme, homospermidine can substitute for spermidine and putrescine can substitute for the lysine residue of the eIF5A precursor. Hypusine is formed from deoxyhypusine by the action of EC 1.14.99.29, deoxyhypusine monooxygenase.
Synonyms	spermidine:eIF5A-lysine 4-aminobutyltransferase (propane-1,3-diamine-forming)

Product Information

Form	Liquid or lyophilized powder
EC Number	EC 2.5.1.46
CAS No.	127069-31-2
Reaction	[eIF5A-precursor]-lysine + spermidine = [eIF5A-precursor]-deoxyhypusine + propane-1,3-diamine (overall reaction); (1a) spermidine + NAD+ = dehydrospermidine + NADH; (1b) dehydrospermidine + [enzyme]-lysine = N-(4-aminobutylidene)-[enzyme]-lysine + propane-1,3-diamine; (1c) N-(4-aminobutylidene)-[enzyme]-lysine + [eIF5A-precursor]-lysine = N-(4-aminobutylidene)-[eIF5A-precursor]-lysine + [enzyme]-lysine; (1d) N-(4-aminobutylidene)-[eIF5A-precursor]-lysine + NADH + H+ = [eIF5A-precursor]-deoxyhypusine + NAD+
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 ℃.