Creative Enzymes®

isoleucine N-monooxygenase

Cat. No. EXWM-0717

Lot. No. (See product label)

Introduction

Description A heme-thiolate protein (P-450). This enzyme catalyses two successive N-hydroxylations of L-isoleucine, the first committed steps in the biosynthesis of the cyanogenic glucoside lotaustralin in the plant Lotus japonicus. The product of the two hydroxylations, N,N-dihydroxy-L-isoleucine, is extremely labile and dehydrates spontaneously. The dehydrated product is then subject to a decarboxylation that produces the oxime. It is still not known whether the decarboxylation is spontaneous or catalysed by the enzyme. The product, (E)-2-methylbutanal oxime, undergoes a spontaneous isomerization to the (Z) form. The enzyme can also accept L-valine as substrate, with a lower activity. It is different from EC 1.14.13.118 (valine N-monooxygenase), which prefers L-valine.

Synonyms CYP79D3; CYP79D4

Product Information

Form Liquid or lyophilized powder

EC Number EC 1.14.13.117

Reaction L-isoleucine + 2 O2 + 2 NADPH + 2 H+ = (E)-2-methylbutanal oxime + 2 NADP+ + CO2 + 3 H2O (overall reaction); (1a) L-isoleucine + O2 + NADPH + H+ = N-hydroxy-L-isoleucine + NADP+ + H2O; (1b) N-hydroxy-L-isoleucine + O2 + NADPH + H+ = N,N-dihydroxy-L-isoleucine + NADP+ + H2O; (1c) N,N-dihydroxy-L-isoleucine = (E)-2-methylbutanal oxime + CO2 + H2O (spontaneous)

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 ℃.