Creative Enzymes®

pimeloyl-[acyl-carrier protein] synthase

Cat. No. EXWM-0937

Lot. No. (See product label)

Introduction

Description A heme-thiolate protein (P-450). The enzyme catalyses an oxidative C-C bond cleavage of long-chain acyl-[acyl-carrier protein]s of various lengths to generate pimeloyl-[acyl-carrier protein], an intermediate in the biosynthesis of biotin. The preferred substrate of the enzyme from the bacterium Bacillus subtilis is palmitoyl-[acyl-carrier protein] which then gives heptanal as the alkanal. The mechanism is similar to EC 1.14.15.6, cholesterol monooxygenase (side-chain-cleaving), followed by a hydroxylation step, which may occur spontaneously.

Synonyms bioI (gene name); P450BioI; CYP107H1

Product Information

Form Liquid or lyophilized powder

EC Number EC 1.14.15.12

Reaction a long-chain acyl-[acyl-carrier protein] + 2 reduced flavodoxin + 3 O2 = pimeloyl-[acyl-carrier protein] + an n-alkanal + 2 oxidized flavodoxin + 3 H2O (overall reaction); (1a) a long-chain acyl-[acyl-carrier protein] + reduced flavodoxin + O2 = a (7S)-7-hydroxy-long-chain-acyl-[acyl-carrier protein] + oxidized flavodoxin + H2O; (1b) a (7S)-7-hydroxy-long-chain-acyl-[acyl-carrier protein] + reduced flavodoxin + O2 = a (7R,8R)-7,8-dihydroxy-long-chain-acyl-[acyl-carrier protein] + oxidized flavodoxin + H2O; (1c) a (7R,8R)-7,8-dihydroxy-long-chain-acyl-[acyl-carrier protein] + reduced flavodoxin + O2 = a 7-oxoheptanoyl-[acyl-carrier protein] + an n-alkanal + oxidized flavodoxin + 2 H2O; (1d) a 7-oxoheptanoyl-[acyl-carrier protein] + oxidized flavodoxin + H2O = a pimeloyl-[acyl-carrier protein] + reduced flavodoxin + 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 ℃ for short term. For long term storage, store it at -20 ℃~-80 ℃.