Creative Enzymes®

Native Pseudomonas sp. Protocatechuate 3, 4-dioxygenase

Cat. No. DIA-214

Lot. No. (See product label)

Introduction

Description	In enzymology, a protocatechuate 3,4-dioxygenase (EC 1.13.11.3) is an enzyme that catalyzes the chemical reaction: 3,4-dihydroxybenzoate + O2 ↔ 3-carboxy-cis,cis-muconate. Thus, the two substrates of this enzyme are 3,4-dihydroxybenzoate (protocatechuic acid) and O2, whereas its product is 3-carboxy-cis,cis-muconate. This enzyme belongs to the family of oxidoreductases, specifically those acting on single donors with O2 as oxidant and incorporation of two atoms of oxygen into the substrate (oxygenases). This enzyme participates in benzoate degradation via hydroxylation and 2,4-dichlorobenzoate degradation. It employs one cofactor, iron.
Applications	This enzyme is useful for enzymatic determination of choline esterase when coupled with p-hydroxybenzoate hydroxylase.
Synonyms	EC 1.13.11.3; Protocatechuate 3,4-dioxygenase; protocatechuate: oxygen 3,4-oxidoreductase (decyclizing); protocatechuate oxygenase; protocatechuic acid oxidase; protocatechuic 3,4-dioxygenase; protocatechuic 3,4-oxygenase

Product Information

Source	Pseudomonas sp.
Appearance	Light brown amorphous powder, lyophilized
EC Number	EC 1.13.11.3
CAS No.	9029-47-4
Molecular Weight	approx. 700 kDa
Activity	GradeⅢ 3.0U/mg-solid or more (containing approx. 40% of stabilizers)
Contaminants	NADPH oxidase < 1.0×10^{-1}%
pH Stability	pH 7.0-9.0 (25°C, 72hr)
Optimum pH	9
Thermal stability	below 50°C (pH 6.0, 1hr)
Optimum temperature	60-65°C
Michaelis Constant	1.85×10^{-5}M (Protocatechuate)
Structure	Protein with nonheme iron
Inhibitors	Ag^{+}, Hg^{++}, PCMB
Stabilizers	Sugars

Storage and Shipping Information

Stability	Store at -20°C (A decrease in activity of ca. 20% may occur within one year)