

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 + O ₂ ⇌ 3-carboxy-cis,cis-muconate. Thus, the two substrates of this enzyme are 3,4-dihydroxybenzoate (protocatechuic acid) and O ₂ , whereas its product is 3-carboxy-cis,cis-muconate. This enzyme belongs to the family of oxidoreductases, specifically those acting on single donors with O ₂ 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)