

## 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<sub>2</sub> ↔ 3-carboxy-cis,cis-muconate. Thus, the two substrates of this enzyme are 3,4-dihydroxybenzoate (protocatechuic acid) and O<sub>2</sub>, 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<sub>2</sub> 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 (deacylizing); protocatechuate oxygenase; protocatechuic acid oxidase; protocatechuic 3,4-dioxygenase; protocatechuic 3,4-oxygenase

### Product Information

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

### Storage and Shipping Information

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

