**p-Hydroxybenzoate Hydroxylase**

from *Pseudomonas sp.*

Product Number  H 9886
Storage Temperature  -20 °C

**Product Description**

Enzyme Commission (EC) Number: 1.14.13.2  
CAS Number: 9059-23-8  
Molecular Weight: 83.6 kDa

Synonyms: 4-hydroxybenzoate, NADPH:oxygen oxidoreductase (3-hydroxylating)

p-Hydroxybenzoate hydroxylase is a flavoprotein containing one mole of FAD per mole of protein. This enzyme constitutes a key enzyme in the β-ketoadipate pathway in bacteria.  

p-Hydroxybenzoate hydroxylase catalyzes the following reaction:

\[ \text{p-Hydroxybenzoate} + \beta\text{-NADPH} + \text{O}_2 \rightarrow \text{protocatechuate} + \beta\text{-NADP} + \text{H}_2\text{O} \]

p-Hydroxybenzoate inserts molecular oxygen into aromatic rings to form phenols. The oxygen molecule initially reacts with FAD to form a derivative of FAD, thought to be peroxyflavin. This intermediate then decays either to oxidized enzyme-bound flavin and \( \text{H}_2\text{O}_2 \) or transfers an atom of oxygen to the aromatic substrate, depending upon the aromatic compound bound to the enzyme.

The enzyme is highly specific for p-hydroxybenzoate with a \( K_m \) of 0.021 mM. The \( K_m \) for \( \beta\text{-NADPH} \) is 0.023 mM. The enzyme is active between the pH range of 7.0 - 9.0, with a pH optimum at pH 8.0.

p-Hydroxybenzoate hydroxylase is is a sulfhydryl containing enzyme and is inhibited by p-hydroxymercuribenzoate (0.5 mM) and \( \text{Zn}^{2+} \) (0.2 mM). This inhibition can be largely reversed (65% and 94%) by the presence of 10 mM glutathione.

**Precautions and Disclaimer**

For Laboratory Use Only. Not for drug, household or other uses.

**Preparation Instructions**

This enzyme is soluble in 50 mM potassium phosphate buffer, pH 6.0 (0.5 mg/ml), yielding a clear solution.

**References**


TMG/NSB 1/04