

Native Horseradish Peroxidase

Cat. No. NATE-0550

Lot. No. (See product label)

Introduction

Description

Peroxidases (EC number 1.11.1.x) are a large family of enzymes that typically catalyze a reaction of the form: $\text{ROOR}' + \text{electron donor (2 e}^-) + 2\text{H}^+ \rightarrow \text{ROH} + \text{R}'\text{OH}$. For many of these enzymes the optimal substrate is hydrogen peroxide, but others are more active with organic hydroperoxides such as lipid peroxides. Peroxidases can contain a heme cofactor in their active sites, or alternately redox-active cysteine or selenocysteine residues.

Synonyms

EC 1.11.1.7; Peroxidase; lactoperoxidase; guaiacol peroxidase; plant peroxidase; Japanese radish peroxidase; horseradish peroxidase (HRP); soybean peroxidase (SBP); extensin peroxidase; heme peroxidase; oxyperoxidase; protoheme peroxidase; pyrocatechol peroxidase; scopoletin peroxidase; Coprinus cinereus peroxidase; Arthromyces ramosus peroxidase

Product Information

Species

Horseradish

Source

Horseradish Roots

Form

A soluble , dialyzed, lyophilized powder

EC Number

EC 1.11.1.7

Molecular Weight

40 kDa (Maehly 1955).

Activity

> 85 units per mg dry weight

Isoelectric point

7.2 (Maehly 1955).

Optimum pH

7.0 (Maehly 1955).

Composition

Seven isozymes have been described by Shannon et al. (1966); Kay et al. (1967); and Strickland et al. (1968). See also Delincée and Radola (1975) and Shih et al. (1971). All contain photohemin IX as prosthetic group. Neutral and amino sugars account for approximately 18% of the enzyme. Weinryb (1966) indicates that the "active site" involves apoprotein as well as the heme group. See also Lanir and Schejter (1975). Dolman et al. (1975) have reported on the formation of Compound I. See also Dunford et al. (1975), Santimone (1975) and Stillman et al. (1975).

Specificity

The enzyme exhibits a high specificity. Activity is observed with H_2O_2 , MeOOH , and EtOOH (Maehly and Chance 1954). See also Chmielnicka et al. (1971) and Morrison and Bayse (1973).

Inhibitors

Horseradish peroxidase is reversibly inhibited by cyanide and sulfide at a concentration of 10^{-5} M (Theorell 1951).

Pathway

C-MYB transcription factor network , organism-specific biosystem, Folate

Pathway	<p> C-MYC transcription factor network, organism-specific biosystem; Folate Metabolism, organism-specific biosystem; IL23-mediated signaling events, organism-specific biosystem; Phagosome, organism-specific biosystem; Phagosome, conserved biosystem; Selenium Pathway, organism-specific biosystem; Transcriptional misregulation in cancer, organism-specific biosystem </p>
Function	<p> chromatin binding; heme binding; heparin binding; metal ion binding; oxidoreductase activity; peroxidase activity </p>
Unit Definition	<p>One Unit decomposes 1μmole of H2O2 per minute at 25°C, pH 7.0 using aminoantipyrine and phenol.</p>
Storage and Shipping Information	
Storage	<p>Store at -20°C</p>
Stability	<p>The enzyme is quite stable. As a lyophilized powder, it may be stored several years refrigerated.</p>