

## (S)-mandelate dehydrogenase

Cat. No. EXWM-0460

Lot. No. (See product label)

### Introduction

**Description** This enzyme is a member of the FMN-dependent  $\alpha$ -hydroxy-acid oxidase/dehydrogenase family. While all enzymes of this family oxidize the (S)-enantiomer of an  $\alpha$ -hydroxy acid to an  $\alpha$ -oxo acid, the ultimate oxidant (oxygen, intramolecular heme or some other acceptor) depends on the particular enzyme. This enzyme transfers the electron pair from FMNH<sub>2</sub> to a component of the electron transport chain, most probably ubiquinone. It is part of a metabolic pathway in Pseudomonads that allows these organisms to utilize mandelic acid, derivatized from the common soil metabolite amygdalin, as the sole source of carbon and energy. The enzyme has a large active-site pocket and preferentially binds substrates with longer sidechains, e.g. 2-hydroxyoctanoate rather than 2-hydroxybutyrate. It also prefers substrates that, like (S)-mandelate, have  $\beta$  unsaturation, e.g. (indol-3-yl)glycolate compared with (indol-3-yl)lactate. Esters of mandelate, such as methyl (S)-mandelate, are also substrates.

**Synonyms** MDH

### Product Information

**Form** Liquid or lyophilized powder

**EC Number** EC 1.1.99.31

**CAS No.** 9067-95-2

**Reaction** (S)-mandelate + acceptor = phenylglyoxylate + reduced acceptor

**Notes** This item requires custom production and lead time is between 5-9 weeks. We can custom produce according to your specifications.

### Storage and Shipping Information

**Storage** Store it at +4 °C for short term. For long term storage, store it at -20 °C~-80 °C.