

## Native Gluconobacter industrius D-Fructose Dehydrogenase

Cat. No. NATE-0184

Lot. No. (See product label)

## Introduction

**Description** D-fructose dehydrogenas

D-fructose dehydrogenase is a heterotrimeric membrane-bound enzyme commonly seen in various Gluconobacter sp. especially in Gluconobacter japonicus (Gluconobacter industrius). It has a molecular mass of ca. 140 kDa, consisting of subunits I (67kDa), II (51 kDa), and III (20 kDa) and catalyzes the oxidation of D-fructose to produce 5-keto-D-fructose. The enzyme is a flavoprotein-cytochrome c complex with subunits I and II covalently bound to flavin adenine dinucleotide (FAD) and heme C as

prosthetic groups, respectively.

**Applications** D-fructose dehydrogenase is used as a biosensor to detect the presence of D-fructose. Fructose

dehydrogenase (FDH) is used in a number of basic research projects to examine the electrochemical properties of enzyme-catalyzed electrode reactions called bioelectrocatalysis. D-fructose dehydrogenase has been used in a study that contributed towards a convenient method for measuring rare sugars, monosaccharides, for applications in the bio-industry. A direct electron transfer reaction of d-fructose dehydrogenase adsorbed on a porous carbon electrode surface has been used to describe a batch-type

coulometric d-fructose biosensor.

**Synonyms** EC 1.1.99.11; fructose 5-dehydrogenase; D-fructose dehydrogenase; D-fructose:(acceptor) 5-

oxidoreductase; 37250-85-4

## **Product Information**

**Source** Gluconobacter industrius

**Form** Lyophilized powder

**EC Number** EC 1.1.99.11

*CAS No.* 37250-85-4

**Activity** 400-1,200 units/mg

**Composition** Protein, <10% Lowry

Definition

Unit

One unit will convert 1.0  $\mu mole$  D-fructose to 5-ketofructose per min at pH 4.5 at 37°C.

## Storage and Shipping Information

*Storage* −20°C

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