Creative Enzymes®

Native Gluconobacter industrius D-Fructose Dehydrogenase

Cat. No. NATE-0184

Lot. No. (See product label)

Introduction

Description	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
Unit Definition	One unit will convert 1.0 µmole D-fructose to 5-ketofructose per min at pH 4.5 at 37°C.

Storage and Shipping Information

Storage	−20°C