Creative Enzymes®

Native Gluconobacter sp. D-Fructose Dehydrogenase

Cat. No. NATE-0185

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. This enzyme is also used in a number of basic research projects to examine the electrochemical properties of enzyme-catalyzed electrode reactions called bioelectrocatalysis.This enzyme is useful for enzymatic determination of D-fructose in clinical analysis.
Synonyms	EC 1.1.99.11; fructose 5-dehydrogenase; D-fructose dehydrogenase; D-fructose: (acceptor) 5-oxidoreductase; 37250-85-4

Product Information

Source	Gluconobacter sp.
Form	lyophilized powder. supplied as a lyophilized powder containing approx 80% stabilizers, sugars, amino acids and BSA
EC Number	EC 1.1.99.11
CAS No.	37250-85-4
Molecular Weight	mol wt ~140 kDa
Activity	> 20 units/mg solid; 400-1,200 units/mg protein
Isoelectric point	5.0 ± 0.1
pH Stability	pH 4.0 – 6.0 (25°C, 16hr)
Optimum pH	4
Thermal stability	Below 40°C (pH 4.5, 15min)
Optimum temperature	37°C
Michaelis Constant	5 x 10^{-3}M (D-Fructose)
Inhibitors	Ag+, Hg++, SDS
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