Creative Enzymes®

Native Microorganism Sorbitol Dehydrogenase

Cat. No. NATE-1909

Lot. No. (See product label)

Introduction

Description	Sorbitol dehydrogenase (or SDH) is a cytosolic enzyme. In humans this protein is encoded by the SORD gene. Sorbitol dehydrogenase is an enzyme in carbohydrate metabolism converting sorbitol, the sugar alcohol form of glucose, into fructose. Together with aldose reductase, it provides a way for the body to produce fructose from glucose without using ATP. Sorbitol dehydrogenase uses NAD+ as a cofactor; its reaction is sorbitol + NAD+--> fructose + NADH + H+. A zinc ion is also involved in catalysis. Organs that use it most frequently include the liver and seminal vesicle; it is found in all kinds of organisms from bacteria to humans. A secondary use is the metabolism of dietary sorbitol, though sorbitol is known not to be absorbed as well in the intestine as its related compounds glucose and fructose, and is usually found in quite small amounts in the diet (except when used as an artificial sweetener).
Applications	This enzyme is useful for determination of D-Sorbitol in clinical analysis and food analysis.
Synonyms	Sorbitol Dehydrogenase; SDH; EC 1.1.1.14; 9028-21-1; L-iditol 2-dehydrogenase; polyol dehydrogenase; sorbitol dehydrogenase; L-iditol:NAD+ 5-oxidoreductase; L-iditol (sorbitol) dehydrogenase; glucitol dehydrogenase; L-iditol:NAD+ oxidoreductase; NAD+-dependent sorbitol dehydrogenase; NAD+-sorbitol dehydrogenase

Product Information

Source	Microorganism
Appearance	Lyophilized
EC Number	EC 1.1.1.14
CAS No.	9028-21-1
Molecular Weight	ca. 68,000; Subunit molecular weight : ca. 26,000.
Specific Activity	more than 30 U/mg protein
Contaminants	(as SorDH activity = 100 %) NADH oxidase: <0.01 %
pH Stability	6.0 - 10.0
Optimum pH	11
Thermal stability	No detectable decrease in activity up to 35 °C.
Optimum temperature	40 °C
Michaelis Constant	(100 mM Tris-HCl buffer, pH 9.0, at 30°C) D-Sorbitol: 3.4 mM; NAD+: 0.13 mM.
Specificity	D-Sorbitol: 100 %; Galactitol: 27 %; L-Iditol: 42 %; Xylitol: 1 %; D-Arabitol: 0 %; D-Mannitol: 0 %; D-Glucose: 0 %; D-Galactose: 0 %; Maltose: 0 %.
Unit Definition	One unit of activity is defined as the amount of SorDH that forms 1 μmol of NADH per minute at 30 °C.
Reaction	D-Sorbitol + NAD+ ⟷ D-Fructose + NADH + H+

Reaction	D-Sorbitol + NAD+ <-> D-Fructose + NADH + H+

Storage and Shipping Information

Storage	Stable at -20 °C for at least one year.