Creative Enzymes®

6-Phosphogluconic Dehydrogenase from Microorganism

Cat. No. NATE-1937

Lot. No. (See product label)

Introduction

Description	In enzymology, a phosphogluconate dehydrogenase (decarboxylating) (EC 1.1.1.44) is an enzyme that catalyzes the chemical reaction:6-phospho-D-gluconate + NADP+↔ D-ribulose 5-phosphate + CO2 + NADPH. Thus, the two substRates of this enzyme are 6-phospho-D-gluconate and NADP+, whereas its 3 products are D-ribulose 5-phosphate, CO2, and NADPH. This enzyme belongs to the family of oxidoreductases, specifically those acting on the CH-OH group of donor with NAD+ or NADP+ as acceptor.
Synonyms	6-Phosphogluconic Dehydrogenase; phosphogluconic acid dehydrogenase; 6-phosphogluconic dehydrogenase; 6-phosphogluconic carboxylase; 6-phosphogluconate dehydrogenase (decarboxylating); 6-phospho-D-gluconate dehydrogenase; EC 1.1.1.44; phosphogluconate dehydrogenase; decarboxylating; 9073-95-4

Product Information

Source	Microorganism
Form	Lyophilized
EC Number	EC 1.1.1.44
Molecular Weight	ca. 132,000
Activity	>40 U/mg protein
Contaminants	(as 6PGDH activity = 100 %) Glucokinase < 0.01 % Phosphoglucomutase < 0.01 % Hexose-6-phosphate isomerase < 0.01 % Glutathione reductase < 0.01 %
Isoelectric point	ca. 4.5
pH Stability	5.0 - 10.0
Optimum pH	7.0 - 7.5
Thermal stability	(50 mM MES-NaOH buffer, pH 6.8, containing 0.5 M KCl) No detectable decrease in activity up to 40 °C.
Michaelis Constant	(80 mM Glycylglycine buffer, pH 7.5, at 30 °C) 6-Phospho-D-gluconate, 0.95 mM NAD+, 0.32 mM
Activators	Mg2+, Mn2+, Ca2+, K+, Na+
Inhibitors	Fructose 1,6-bisphosphate, Erythrose 4-phosphate, NADH
Stabilizers	KCl, MgCl2, Sorbitol, BSA
Unit Definition	One unit of activity is defined as the amount of 6PGDH that forms 1 µmol of NADH per minute at 30 °C.

Storage and Shipping Information

Storage	Stable at -20 °C for at least six months