

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

