

Native Yeast 6-Phosphogluconic Dehydrogenase

Cat. No. NATE-0009

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.

Applications

6-phosphogluconic dehydrogenase (6PGD) is a key enzyme in the oxidative portion of the hexose monophosphate shunt. It is specific for oxidized nicotinamide adenine dinucleotide phosphate (NADP⁺). 6-phosphogluconate dehydrogenase is involved in the production of ribulose 5-phosphate, which is involved in nucleotide synthesis and the pentose phosphate pathway by generating NADPH. 6-phosphogluconate dehydrogenase is used to study nucleotide synthesis, glucose metabolism, and the protection of cells from oxidative damage.

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

Yeast

Form

lyophilized powder.

EC Number

EC 1.1.1.44

CAS No.

9073-95-4

Activity

3.0-6.0 units/mg solid

Unit Definition

One unit will oxidize 1.0 μmole of 6-phospho-D-gluconate to D-ribulose 5-phosphate and CO₂ per min at pH 7.4 at 37°C in the presence of NADP⁺.

Storage and Shipping Information

Storage

2-8°C