

Chemically modified Glucose-6-phosphate Dehydrogenase from *Leuconostoc mesenteroides*

Cat. No. DIA-280

Lot. No. (See product label)

Introduction

Description	Glucose-6-phosphate dehydrogenase (G6PD or G6PDH) (EC 1.1.1.49) is a cytosolic enzyme that catalyzes the chemical reaction: D-glucose 6-phosphate + NADP ⁺ ↔ 6-phospho-D-glucono-1,5-lactone + NADPH + H ⁺ . This enzyme is in the pentose phosphate pathway, a metabolic pathway that supplies reducing energy to cells (such as erythrocytes) by maintaining the level of the co-enzyme nicotinamide adenine dinucleotide phosphate (NADPH).
Applications	Use Glucose-6-phosphate Dehydrogenase for the determination of blood glucose or creatine kinase.
Synonyms	D-glucose 6-phosphate dehydrogenase; glucose 6-phosphate dehydrogenase (NADP); NADP-dependent glucose 6-phosphate dehydrogenase; 6-phosphoglucose dehydrogenase; Entner-Doudoroff enzyme; glucose-6-phosphate 1-dehydrogenase; G6PDH; GPD; glucose-6-phosphate dehydrogenase

Product Information

Species	<i>Leuconostoc mesenteroides</i>
Source	<i>E. coli</i>
Appearance	White lyophilizate
Molecular Weight	110 kD (2 identical subunits 55,000 D)
Activity	>30 U/mg lyophilizate
Contaminants	ATPase: <0.02 Creatine kinase: <0.001 Glutamate dehydrogenase: <0.01 Glutathione reductase: <0.001 Hexokinase and Glucose dehydrogenase: <0.05 Myokinase: <0.05 "NADH oxidase": <0.02 "NADPH oxidase": <0.0005 6-Phosphogluconate dehydrogenase: <0.001 Phosphoglucose isomerase: <0.01 Phosphoglucomutase: <0.001 Glucose: <0.3 µg/mg lyophilizate
Isoelectric point	4.6
pH Stability	5.0-10.0
Optimum pH	7.8
Thermal stability	Up to +40°C for native G6P-DH, up to +50°C for modified G6P-DH
Michaelis Constant	NAD: 1.4 x 10 ⁻⁴ mmol/l NADP: 3.7 x 10 ⁻⁵ mmol/l Glucose-6-P: 3.7 x 10 ⁻⁴ mmol/l (NAD as coenzyme) Glucose-6-P: 2.0 x 10 ⁻⁴ mmol/l (NAD as coenzyme)
Specificity	G6P-DH is highly specific for glucose-6-phosphate and does not react with fructose-6-P, fructose-1,6-P ₂ or glucose-1-P. 2-Deoxyglucose-6-P is slowly oxidized with NAD (5%) and with NADP (4%).
Activators	Phosphate, 5 mmol/l: 100% (NAD), 80% (NADP) Phosphate, 50 mmol/l: 100% (NAD), 80% (NADP) Without Mg ²⁺ : 90% (NAD), 80% (NADP) Mg ²⁺ , 3 mmol/l: 100% (NAD), 100% (NADP) Mg ²⁺ , 30 mmol/l: 100% (NAD), 100% (NADP) HCO ₃ ⁻ , 3 mmol/l: 100% (NAD), 100% (NADP)
Inhibitors	NADPH is a competitive inhibitor in the NAD-dependent reaction. Unlike the yeast enzyme, myristic

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NADPH is a competitive inhibitor in the NAD dependent reaction. Unlike the yeast enzyme, myristic acid, dehydroepiandrosterone and palmitoyl CoA do not inhibit.

Storage and Shipping Information**Stability**

At +2 to +8°C within specification range for 18 months. Store dry.