

Glucose Dehydrogenase from *E. coli*, Recombinant

Cat. No. NATE-1902

Lot. No. (See product label)

Introduction

Description In enzymology, a glucose 1-dehydrogenase (EC 1.1.1.47) is an enzyme that catalyzes the chemical reaction: $\beta\text{-D-glucose} + \text{NAD (P)}^+ \leftrightarrow \text{D-glucono-1,5-lactone} + \text{NAD (P)H} + \text{H}^+$. The 3 substrates of this enzyme are $\beta\text{-D-glucose}$, NAD^+ , and NADP^+ , whereas its 4 products are D-glucono-1,5-lactone, NADH, NADPH, and H^+ . 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 This enzyme is useful for determination of glucose.

Synonyms EC 1.1.1.47; D-glucose dehydrogenase (NAD (P)⁺); hexose phosphate dehydrogenase; $\beta\text{-D-glucose:NAD (P)}^+$ 1-oxidoreductase; glucose 1-dehydrogenase; Glucose dehydrogenase; 9028-53-9

Product Information

Source *E. coli*

Appearance Lyophilized

EC Number EC 1.1.1.47

CAS No. 9028-53-9

Molecular Weight ca. 126,000; Subunit molecular weight : ca. 31,500.

Specific Activity more than 900 U/mg protein

Contaminants as GlcDH2 activity = 100 %) NADH oxidase: <0.01 %

pH Stability 5.0 - 10.0 (with 3M NaCl)

Optimum pH 8.5

Thermal stability No significant decrease in activity up to 70 °C. (with 3M NaCl and 0.1% BSA).

Michaelis Constant D-Glucose: 3.7 mM; NAD^+ : 0.06 mM; NADP^+ : 0.02 mM.

Specificity D-Glucose: 100 %; D-Maltose: 1.1 %; D-Galactose: 0.1 %; D-Xylose: 3.0 %; D-Fructose: 0.3 %; D-Mannose: 4.8 %; D-Arabinose: 0 %; Trehalose: 0 %; D-Lactose: 1.3 %; D-Sucrose: 0 %; 2-Deoxy-D-Glucose: 100 %; D-Glucose-1-Phosphate: 0 %; D-Glucose-6-Phosphate: 0 %; D-Sorbitol: 0 %;

Unit Definition One unit of activity is defined as the amount of GlcDH2 that forms 1 μmol of NADH per minute at 37 °C.

Reaction $\text{D-Glucose} + \text{NAD(P)}^+ \leftrightarrow \text{D-Glucono-}\delta\text{-lactone} + \text{NAD(P)H} + \text{H}^+$

Storage and Shipping Information

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