

## 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:  $\beta$ -D-glucose + NAD (P)<sup>+</sup>  $\leftrightarrow$  D-glucono-1,5-lactone + NAD (P)H + H<sup>+</sup>. The 3 substrates of this enzyme are  $\beta$ -D-glucose, NAD<sup>+</sup>, and NADP<sup>+</sup>, whereas its 4 products are D-glucono-1,5-lactone, NADH, NADPH, and H<sup>+</sup>. This enzyme belongs to the family of oxidoreductases, specifically those acting on the CH-OH group of donor with NAD<sup>+</sup> or NADP<sup>+</sup> as acceptor.

#### Applications

This enzyme is useful for determination of glucose.

#### Synonyms

EC 1.1.1.47; D-glucose dehydrogenase (NAD (P)<sup>+</sup>); hexose phosphate dehydrogenase;  $\beta$ -D-glucose:NAD (P)<sup>+</sup> 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<sup>+</sup>: 0.06 mM; NADP<sup>+</sup>: 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  $\mu$ mol of NADH per minute at 37 °C.

#### Reaction

D-Glucose + NAD(P)<sup>+</sup>  $\leftrightarrow$  D-Glucono- $\delta$ -lactone + NAD(P)H + H<sup>+</sup>

### Storage and Shipping Information

#### Storage

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