

DT Diaphorase from human, Recombinant

Cat. No. NATE-0208

Lot. No. (See product label)

Introduction

Description

DT Diaphorase is a flavoenzyme that catalyzes the oxidation of reduced di- and triphosphopyridine nucleotides. It contains one mole of FAD per mole of enzyme. The enzyme found in rat liver catalyzes the oxidation of NADH and NADPH by various dyes and quinones. The molecular weight is found to be approximately 48 kDa. The pH optimum of the enzyme purified from rat liver is found to be 5.0. It is a cytosolic enzyme that catalyzes the two-electron reduction of various quinones. It catalyzes the conversion of vitamin K to vitamin K hydroquinone for utilization in the post-translational γ -glutamyl carboxylation reactions. These reactions are necessary for several proteins involved in blood coagulation.

Applications

Human DT diaphorase has been used in a study to assess the development of novel quinone phosphorodiamidate prodrugs. Human DT diaphorase has also been used to investigate its crystal structure for the development of a model for its interaction with the cytotoxic prodrug 5-(aziridin-1-yl)-2,4-dinitrobenzamide (CB1954).

Synonyms

menadione reductase; phyloquinone reductase; quinone reductase; dehydrogenase, reduced nicotinamide adenine dinucleotide (phosphate, quinone); DT-diaphorase; flavoprotein NAD (P)H-quinone reductase; menadione oxidoreductase; NAD (P)H dehydrogenase; NAD (P)H menadione reductase; NAD (P)H-quinone dehydrogenase; NAD (P)H-quinone oxidoreductase; NAD (P)H: (quinone-acceptor) oxidoreductase; NAD (P)H:menadione oxidoreductase; NADH-menadione reductase; naphthoquinone reductase; p-benzoquinone reductase; reduced NAD (P)H dehydrogenase; viologen accepting pyridine nucleotide oxidoreductase; vitamin K reductase; diaphorase; reduced nicotinamide-adenine dinucleotide (phosphate) dehydrogenase; vitamin-K reductase; NAD (P)H₂ dehydrogenase (quinone); NQO1; QR1; DTD; NAD (P)H: (quinone-acceptor) oxidoreductase; EC 1.6.99.2

Product Information

Species

Human

Source

E. coli

Form

lyophilized powder

EC Number

EC 1.6.99.2

Molecular Weight

monomer mol wt 31 kDa

Pathway

Keap1-Nrf2 Pathway, organism-specific biosystem; Metabolism, organism-specific biosystem; Metabolism of amino acids and derivatives, organism-specific biosystem; Oxidative Stress, organism-specific biosystem; Regulation of ornithine decarboxylase (ODC), organism-specific biosystem

Function

NAD (P)H dehydrogenase (quinone) activity; coenzyme binding; cytochrome-b5 reductase activity; electron carrier activity; oxidoreductase activity; protein binding

Unit Definition

One unit will reduce 1.0 μ mole Cytochrome C per min/mg in the presence of

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One unit will reduce 1.0 μ mole Cytochrome C per minute in the presence of menadione substrate at 37°C.

Storage and Shipping Information**Storage**

2-8°C