Creative Enzymes®

DT Diaphorase from rat, Recombinant

Cat. No. NATE-0209

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 Da. 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	DT Diaphorase from rat has been used in a study to investigate the two-electron reduction of quinones by rat liver. DT Diaphorase from rat has also been used in a study to investigate colon cancer chemopreventive efficacy of silibinin through perturbation of xenobiotic metabolizing enzymes.
Synonyms	menadione reductase; phylloquinone 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	Rat
Source	E. coli
Form	Lyophilized powder containing approx. 5% protein balance lactose and PBS buffer salts
EC Number	EC 1.6.99.2
Molecular Weight	monomer mol wt 31 kDa
Purity	~90% (SDS-PAGE)
Pathway	Keap1-Nrf2, 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; NAD (P)H dehydrogenase (quinone) activity; coenzyme binding; electron carrier activity; oxidoreductase activity; superoxide dismutase activity
Unit Definition	One unit will reduce 1.0 umole Cytochrome C per min/mg in the presence of menadione

Unit Definition	One unit will reduce 1.0 µmole Cytochrome C per min/mg in the presence of menadione substrate at 37°C.

Storage and Shipping Information

Storage	2-8°C