

## 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  $\gamma$ -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)H<sub>2</sub> dehydrogenase (quinone); NQO1; QR1; DTD; NAD (P)H: (quinone-acceptor) oxidoreductase; EC 1.6.99.2

### Product Information

<b>Species</b>	Human
<b>Source</b>	E. coli
<b>Form</b>	lyophilized powder
<b>EC Number</b>	EC 1.6.99.2
<b>Molecular Weight</b>	monomer mol wt 31 kDa
<b>Pathway</b>	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
<b>Function</b>	NAD (P)H dehydrogenase (quinone) activity; coenzyme binding; cytochrome-b5 reductase activity; electron carrier activity; oxidoreductase activity; protein binding
<b>Unit Definition</b>	One unit will reduce 1.0 $\mu$ mole Cytochrome C per min/mg in the presence of menadione substrate at 37°C.

### Storage and Shipping Information

**Storage** 2-8°C