

Native Malate dehydrogenase (Decarboxylating) from Thermophillic bacteria

Cat. No. DIA-402

Lot. No. (See product label)

Introduction

Description

Malate dehydrogenase is an enzyme in the citric acid cycle that catalyzes the conversion of malate into oxaloacetate (using NAD⁺) and vice versa (this is a reversible reaction). Malate dehydrogenase is not to be confused with malic enzyme, which catalyzes the conversion of malate to pyruvate producing NADPH. Malate dehydrogenase is also involved in gluconeogenesis, the synthesis of glucose from smaller molecules. Pyruvate in the mitochondria is acted upon by pyruvate carboxylase to form oxaloacetate, a citric acid cycle intermediate. In order to get the oxaloacetate out of the mitochondria, malate dehydrogenase reduces it to malate, and it then traverses the inner mitochondrial membrane. Once in the cytosol, the malate is oxidized back to oxaloacetate by cytosolic malate dehydrogenase. Finally, phosphoenol-pyruvate carboxy kinase (PEPCK) converts oxaloacetate to phosphoenol pyruvate.

Applications

Diagnostic test and biosensors; NADH recycling; carboxylation and decarboxylation at high temperatures. This enzyme is a potential candidate for biocatalysis, suitable for pharmaceutical development / manufacturing.

Synonyms

malic dehydrogenase; L-malate dehydrogenase; NAD-L-malate dehydrogenase; malic acid dehydrogenase; NAD-dependent malic dehydrogenase; NAD-malate dehydrogenase; NAD-malic dehydrogenase; malate NAD dehydrogenase; NAD-dependent malate dehydrogenase; NAD-sp; ECific malate dehydrogenase; NAD-linked malate dehydrogenase; MDH; L-malate-NAD⁺ oxidoreductase; S-malate: NAD⁺ oxidoreductase; EC 1.1.1.38; Malate Dehydrogenase

Product Information

Source Thermophillic bacteria

Form Frozen Liquid

EC Number EC 1.1.1.38

CAS No. 9080-52-8

Optimum pH 6.5

Thermal stability ~100% stability after 1 hour at 70°C

Buffer 50 mM Tris-HCl (pH 8.0), 50 mM NaCl

Unit Definition One unit of enzyme is defined as the amount catalyzing the oxidation of 1μmol NADH ($\epsilon = 6.22 \text{ mM}^{-1}\text{cm}^{-1}$) per min at 37°C.

Storage and Shipping Information

Storage Store at -20°C