Native Microorganism Malate Dehydrogenase

Cat. No. DIA-160

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	This enzyme is useful for enzymatic determination of L-malate and of glutamate oxaloacetate transaminase (GOT) in clinical analysis.
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 1.1.1.37; Malate Dehydrogenase

Product Information

Source	Microorganism
Appearance	Slightly yellowish amorphous powder, lyophilized
Form	Freeze dried powder
EC Number	EC 1.1.1.37
CAS No.	9001-64-3
Molecular Weight	approx. 140 kDa
Activity	GradeⅡ 40U/mg-solid or more
Contaminants	Glutamate oxaloacetate transaminase < 1.0×10^{-3}% Lactate dehydrogenase < 1.0×10^{-3}% NADH oxidase< 1.0×10^{-3}%
Isoelectric point	pH 4.8±0.1
pH Stability	pH 3.0-9.0 (25°C, 20hr)
Optimum pH	8
Thermal stability	below 70°C (pH 7.5, 15min)
Optimum temperature	70°C
Michaelis Constant	5.4×10^{-5}M (L-Malate), 5.0×10^{-6}M (Oxaloacetate), 8.1×10^{-6}M (NADH)

Michaelis Constant	5.4×10⁻⁴ M (L-Malate), 3.0×10⁻⁴ M (Oxaloacetate), 8.1×10⁻⁶ M (NADH)
Structure	4 subunits per mole of enzyme
Inhibitors	Hg^{++}

Storage and Shipping Information

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