

Product Data Sheet

Cat # RP-362

Recombinant Malate Dehydrogenase

Size: 1000 IU

Malate dehydrogenase (EC1.1.1.37) 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 pyruvate using 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.

Usage: This item is for LABORATORY RESEARCH USE ONLY. The product may not be used as drugs, agricultural or pesticidal products, food additives or household chemicals.

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Source: Escherichia Coli. The DNA encoding Malate (Malic) Dehydrogenase is cloned from cDNA library of chicken heart. The MDH is purified by proprietary chromatographic techniques. The protein (1 mg/ml) was lyophilized with 0.5 mg potassium phosphate.

Applications and Suggested Dilutions: Greater than 95.0% as determined by: (a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE. Users must optimize the appropriate concentration and conditions for each assay.

Storage and Stability: It is recommended to reconstitute the lyophilized Malate dehydrogenase in sterile 18MQ-cm H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions. Lyophilized Malate dehydrogenase although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution MDH should be stored at 4°C between 2-7 days and for future use below -18°C. **Please prevent freeze-thaw cycles.** If supplied in powder then reconstitute it in 100 µl water for 1 mg/ml stock and store in liquid at 4°C for ~1 week or aliquots in suitable size and store at -20°C for long term storage.

Unit Definition: One unit is defined as 1 µmol of NAD⁺ production per minute under the assay conditions (25°C, pH 7.5).

Alpha Diagnostic Intl Inc., 6203 Woodlake Center Dr, S an Antonio, T X 7 8 24 4 , U S A;

India Contact:

Life Technologies (India) Pvt. Ltd.

306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400 Fax: +91-11-42208444 Email: customerservice@lifetechindia.com Website: www.lifetechindia.com