D-Malate dehydrogenase (EC 1.1.1.83), *Escherichia coli*

Catalogue number:

AE00151, 200 U (93 mg)

Description

Recombinant D-malate dehydrogenase (decarboxylating; EC 1.1.1.83) is purified from a modified *E. coli* strain. D-Malate dehydrogenase is an enzyme that catalyzes the conversion of malate into pyruvate and carbon dioxide (using NAD^+). This enzyme belongs to the family of oxidoreductases, specifically those acting on the CH-OH group of donor with NAD+ or $NADP^+$ as acceptor. The systematic name of this enzyme class is (R)-malate:NAD^+ oxidoreductase (decarboxylating). Other names in common use include D-malate dehydrogenase, D-malic enzyme, bifunctional L(+)-tartrate dehydrogenase-D(+)-malate, and (decarboxylating). This enzyme participates in butanoate metabolism. The enzyme is provided in 3.2 M ammonium sulphate and should be stored at 4 °C. Swirl to mix the enzyme suspension immediately prior to use.

Purity

D-Malate dehydrogenase has been determined to be >95% pure, according to SDS polyacrylamide gel electrophoresis (PAGE) followed by Coomassie Blue staining (Figure 1).

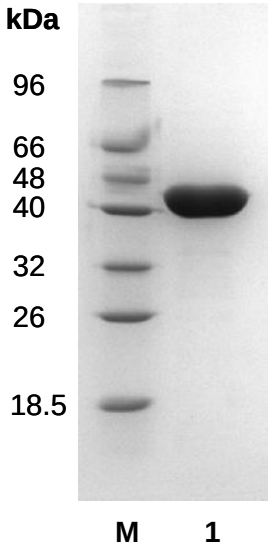

Figure 1. SDS-PAGE analysis of *E. coli* D-malate dehydrogenase. Electrophoresis was performed using a 12% polyacrylamide gel. Lane M, molecular weight marker; Lane 1, purified D-Malate dehydrogenase (42 kDa).

Storage temperature

D-Malate Dehydrogenase should be stored at 2 °C to 8 °C.

Temperature and pH optimum

The optimum pH and temperature are 8.0 and 25 °C, respectively.

Specific activity

2.15 U/mg protein, 28 U/ml.

Unit definition

One unit is defined as the amount of enzyme required to produce 1 µmol of NADH from NAD^+ in a reaction mixture containing 75 mM Tris-HCl buffer, pH 8.0, 7.5 mM $MgCl_2$, 40 mM KCl, 75 µg/ml D-Malic acid and 1.85 mM NAD^+, at 25 °C.

Substrate specificity

Under the reaction conditions specified the enzyme does not present any other detectable enzymatic activities.

Reference

Stern JR, O'Brien RW (1969) Journal of Bacteriology 98, 147–51.

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Certificate of Analysis

Test	Criteria	Result
Protein purity	Purity in line with the stated value	Meets specification
Protein concentration	Concentration in line with the stated value	Meets specification
Catalytic activity	Activity in line with the stated value	Meets specification
Blank assay variability	Absorbance values with less than 10% of variability	Meets specification

Approved by:

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