AE0009_UG_EN_V2302

L-Malate dehydrogenase (EC 1.1.1.37), *Escherichia coli*

Catalogue number	Presentation
AE00091	50 kU (12.5 ml)

Description

Recombinant L-malate dehydrogenase (EC 1.1.1.37) is purified from a modified *E. coli* strain. Malate dehydrogenase is an enzyme of the citric acid cycle that catalyzes the conversion of malate into oxaloacetate (using NAD^+), which is a reversible reaction. This enzyme 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. The enzyme is provided in 3.2 M ammonium sulphate. Swirl to mix the enzyme suspension immediately prior to use.

Purity

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

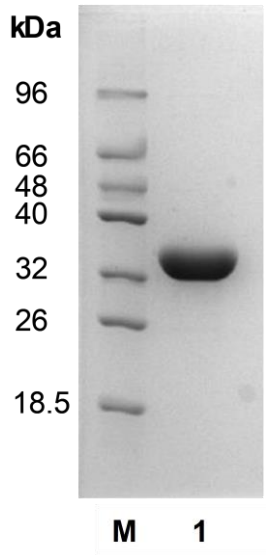

Figure 1. SDS-PAGE analysis of *E. coli* L-malate dehydrogenase. Electrophoresis was performed using a 12% polyacrylamide gel. Lane M, molecular weight marker; Lane 1, purified L-malate dehydrogenase (34 kDa).

Storage temperature

L-malate dehydrogenase should be stored at 2 °C to 8 °C.

Temperature and pH optimum

The optimum pH and temperature are 7.5 and 25 °C, respectively.

Activity

4000 U/mL

Unit Definition

One unit is defined as the amount of enzyme required to produce 1 mmol of NAD^+ from NADH in a reaction mixture containing 100 mM sodium phosphate buffer, pH 7.5, 0.5 mg/ml BSA, 0.5 mM oxaloacetic acid and 0.24 mM NADH, at 25 °C.

Substrate specificity

Under the reaction conditions specified the enzyme might present a minor NADH oxidase activity.

References

Constanzo et al. (2007) Journal of Molecular Biology 366, 481-493.

Baldoma and Aguillar (1987) The Journal of Biological Chemistry 262, 13991-13996.