AE00121_UG_V2302

D-Lactate dehydrogenase (EC 1.1.1.28), *Leuconostoc mesenteroides*

Catalogue number	Presentation
AE00121	22 kU (2,5 mL)

Description

Recombinant D-lactate dehydrogenase (EC 1.1.1.28) is purified from a modified *E. coli* strain. D-Lactate dehydrogenase is an enzyme that catalyzes specifically the reduction of D(+) lactate to pyruvate with concomitant oxidation of NAD^+ to NADH. 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 is D-lactate:NAD^+ oxidoreductase. This enzyme has been identified mainly in lower organisms and, e.g. in lactic acid bacteria, where it plays a key role in anaerobic energy metabolism. In fact, very few D-specific enzymes have been identified in vertebrates. In rare instances, accumulation of D-lactate has been reported in patients with short-bowel syndrome leading to severe lactic acidosis. The quality of several food products are correlated to its content of D-lactic acid. The enzyme is provided in 3.2 M ammonium sulphate. Swirl to mix the enzyme suspension immediately prior to use.

Purity

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

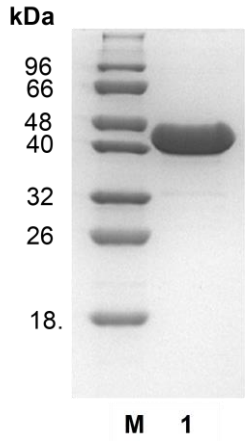

Figure 1. SDS-PAGE analysis of *L. mesenteroides* D-lactate dehydrogenase. Electrophoresis was performed using a 14% polyacrylamide gel. Lane M, molecular weight marker; Lane 1, purified D-lactate Dehydrogenase (42 kDa)..

Storage temperature

D-Lactate dehydrogenase should be stored at 2°C to 8°C.

Temperature and pH optimum

The optimum pH and temperature are 7.0 and 37 °C, respectively.

Activity

8900 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 92 mM sodium phosphate buffer, pH 7.0, 0.77 mM pyruvic acid and 0.2 mM NADH, at 25 °C.

Substrate specificity

Under the reaction conditions specified the enzyme does not present any other detectable catalytic activity.

References

Flick MJ, Konieczny SF (2002) Identification of putative mammalian D-lactate dehydrogenase enzymes. Biochem Biophys Res Commun, 295, 910-916.

Taguchi H, Ohta T (1991) D-Lactate dehydrogenase is a member of the D-isomer-specific 2-hydroxyacid dehydrogenase family - Cloning, sequencing, and expression in Escherichia coli of the D-lactate dehydrogenase gene of Lactobacillus plantarum. J. Biol. Chem. 266, 12588–12594.