Native Bacillus sp. Leucine dehydrogenase

Cat. No. DIA-209

Lot. No. (See product label)

Introduction

Description In enzymology, a leucine dehydrogenase (EC 1.4.1.9) is an enzyme that catalyzes the chemical reaction: L-leucine + H2O + NAD+ ↔ 4-methyl-2-oxopentanoate + NH3 + NADH + H+. The 3 substrates of this enzyme are L-leucine, H2O, and NAD+, whereas its 4 products are 4-methyl-2-oxopentanoate, NH3, NADH, and H+. This enzyme belongs to the family of oxidoreductases, specifically those acting on the CH-NH2 group of donors with NAD+ or NADP+ as acceptor. This enzyme participates in valine, leucine and isoleucine degradation and valine, leucine and isoleucine biosynthesis.

Applications This enzyme is useful for enzyme determination of L-leucine and the activity of leucine amino-peptidase.

Synonyms EC 1.4.1.9; Leucine dehydrogenase; L-leucine: NAD+ oxidoreductase (deaminating); L-leucine dehydrogenase; L-leucine: NAD+ oxidoreductase (deaminating); LeuDH

Product Information

Source Bacillus sp.

Appearance White amorphous powder, lyophilized

EC Number EC 1.4.1.9

CAS No. 9082-71-7

Molecular Weight 245 kDa

Activity GradeⅡ 20U/mg-solid or more (containing approx. 70% of stabilizers)

Contaminants Leucylpeptide decomposing enzymes (Leu-Val) < 1.0×10^{-2}% (Leu-Gly-Gly) < 1.0×10^{-2}% NADH oxidase < 1.0×10^{-2}%

pH Stability pH 5.5-10.5 (25°C, 20hr)

Optimum pH 10.5-10.8 (L-Leu→α-KIC), 9.4 (α-KIC→L-Leu)

Thermal stability below 60°C (pH 6.9, 10min)

Optimum temperature above 70°C

Michaelis Constant 1.0×10^{-3}M (L-Leucine), 3.9×10^{-4}M (NAD^+), 3.5×10^{-5}M (NADH), 3.1×10^{-4}M [α-Ketoisocaproate (α-KIC)], 2.0×10^{-1}M (NH_3)

Structure 6 subunits per mol of enzyme

Inhibitors Na_2S, Hg^{++}, Cu^{++}, Co^{++}, Mg^{++}, p-chloromercuribenzoate

Stabilizers 2-Mercaptoethanol, L-cysteine, dithiothreitol, ethylenediaminetetraacetate

Storage and Shipping Information

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