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