

Leucine dehydrogenase from Microorganism

Cat. No. NATE-1715

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.

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	Microorganism
Form	White powder, lyophilized
EC Number	EC 1.4.1.9
CAS No.	9082-71-7
Molecular Weight	43 kDa (SDS-PAGE)
Activity	>500U/mg protein
Isoelectric point	6.6
pH Stability	6.0~11.0 (25°C, 15hr)
Optimum pH	above 11.0 (L-Leu → α-K I C), 8.5 (α-K I C → L-Leu)
Thermal stability	< 55°C (pH 7.0, 20min)
Optimum temperature	55-60°C (L-Leu → α-K I C) above 60°C (α-K I C → L-Leu)
Michaelis Constant	2.6×10 ⁻⁴ M (NAD) 2.0×10 ⁻³ M (L-Leucine) 6.8×10 ⁻⁴ M (α-Ketoisocaproate) 4.2×10 ⁻² M (NH ₄ Cl) 2.3×10 ⁻⁴ M (NADH)
Inhibitors	Hg ²⁺
Unit Definition	One unit will convert one micromole of L-Leucine to α-Ketoisocaproate per minute at pH 10.5 at 37°C.
Notes	INTENDED FOR RESEARCH USE ONLY, NOT FOR USE IN HUMAN, THERAPEUTIC OR DIAGNOSTIC APPLICATIONS.

Storage and Shipping Information

Storage	Store at -20°C.
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