

## 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 + H<sub>2</sub>O + NAD<sup>+</sup> ↔ 4-methyl-2-oxopentanoate + NH<sub>3</sub> + NADH + H<sup>+</sup>. The 3 substrates of this enzyme are L-leucine, H<sub>2</sub>O, and NAD<sup>+</sup>, whereas its 4 products are 4-methyl-2-oxopentanoate, NH<sub>3</sub>, NADH, and H<sup>+</sup>. This enzyme belongs to the family of oxidoreductases, specifically those acting on the CH-NH<sub>2</sub> group of donors with NAD<sup>+</sup> or NADP<sup>+</sup> 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 aminopeptidase.

**Synonyms** EC 1.4.1.9; Leucine dehydrogenase; L-leucine: NAD<sup>+</sup> oxidoreductase (deaminating); L-leucine dehydrogenase; L-leucine: NAD<sup>+</sup> oxidoreductase (deaminating); LeuDH

### Product Information

<b>Source</b>	Bacillus sp.
<b>Appearance</b>	White amorphous powder, lyophilized
<b>EC Number</b>	EC 1.4.1.9
<b>CAS No.</b>	9082-71-7
<b>Molecular Weight</b>	245 kDa
<b>Activity</b>	Gradell 20U/mg-solid or more (containing approx. 70% of stabilizers)
<b>Contaminants</b>	Leucylpeptide decomposing enzymes (Leu-Val) < 1.0×10 <sup>-2</sup> % (Leu-Gly-Gly) < 1.0×10 <sup>-2</sup> % NADH oxidase < 1.0×10 <sup>-2</sup> %
<b>pH Stability</b>	pH 5.5-10.5 (25°C, 20hr)
<b>Optimum pH</b>	10.5-10.8 (L-Leu→α-KIC), 9.4 (α-KIC→L-Leu)
<b>Thermal stability</b>	below 60°C (pH 6.9, 10min)
<b>Optimum temperature</b>	above 70°C
<b>Michaelis Constant</b>	1.0×10 <sup>-3</sup> M (L-Leucine), 3.9×10 <sup>-4</sup> M (NAD <sup>+</sup> ), 3.5×10 <sup>-5</sup> M (NADH), 3.1×10 <sup>-4</sup> M [α-Ketoisocaproate (α-KIC)], 2.0×10 <sup>-3</sup> M (NH <sub>3</sub> )
<b>Structure</b>	6 subunits per mol of enzyme
<b>Inhibitors</b>	Na <sub>2</sub> S, Hg <sup>++</sup> , Cu <sup>++</sup> , Co <sup>++</sup> , Mg <sup>++</sup> , p-chloromercuribenzoate
<b>Stabilizers</b>	2-Mercaptoethanol, L-cysteine, dithiothreitol, ethylenediaminetetraacetate

## ***Storage and Shipping Information***

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