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Product Information

L-Isoleucine, from non-animal source Cell culture tested, meets EP, JP, & USP testing specifications

Product Number **I7403**

Product Description

Molecular Formula: $C_6H_{13}NO_2$

Molecular Weight: 131.2

CAS Number: 73-32-5

pI: 6.04¹

pK_a: 2.32 (-COOH), 9.76 (-NH₂)¹

Specific Rotation: +40.61 (46 mg/ml, 6.1 N HCl, 25 °C)²

Synonyms: 2-amino-3-methylvaleric acid,
 α -amino- β -methylvaleric acid, Ile²

This product is cell culture tested (0.03 mg/ml) and is tested for endotoxin levels.

The alkyl amino acid L-isoleucine is an isomer of L-leucine, differing in the position of the side chain. In L-isoleucine, the methyl group is on the β -carbon of the amino acid chain, rather than the γ -carbon as in L-leucine. Isoleucine is biosynthesized from threonine through the formation of α -ketobutyrate. Isoleucine is degraded to acetyl CoA and to propionyl CoA. Isoleucine provides a source of nitrogen for transport to the liver and kidney.^{3,4}

The induction of apoptosis upon deprivation of isoleucine and other amino acids in two different sets of cultured cells, PC12 cells and postmitotic neurons isolated from fetal rat brains, has been studied.⁵ Isoleucine has been shown to block lysine transport in cultured chicken jejunum epithelial cells.⁶ The interaction of isoleucine with *Arabidopsis thaliana* threonine deaminase has been examined by biochemical and mass spectrometric studies.⁷

A GC/MS method for the analysis of various amino acids, including isoleucine, via pyrolysis in the presence of hexamethyldisilazane has been described.⁸

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in 1 M NH₄OH (50 mg/ml), with heat as needed, yielding a clear, colorless solution. The solubility in water (25 °C) has been reported to be 41.2 mg/ml.^{1,2}

References

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5. Yen, C. L., et al., Deficiency in methionine, tryptophan, isoleucine, or choline induces apoptosis in cultured cells. *J. Nutr.*, **132(7)**, 1840-1847 (2002).
6. Angelo, S., et al., Epithelial cells isolated from chicken jejunum: an experimental model for the study of the functional properties of amino acid transport system b⁰⁺. *Comp. Biochem. Physiol. A Mol. Integr. Physiol.*, **132(3)**, 637-644 (2002).
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8. Chiavari, G., et al., Gas chromatographic-mass spectrometric analysis of products arising from pyrolysis of amino acids in the presence of hexamethyldisilazane. *J. Chromatogr. A*, **922(1-2)**, 235-241 (2001).

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