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ProductInformation

L-Lysine

Product Number **L 5501**
Store at Room Temperature

Product Description

Molecular Formula: $C_6H_{14}N_2O_2$
Molecular Weight: 146.2
CAS Number: 56-87-1
pI: 9.47[1]
pK_a: 2.16 (COOH), 9.06 (α-NH_2),
10.54 (N-butyl amino group)[1]
Specific Rotation: +14.6° (65 mg/ml, H_2O, 20 °C)[2]
Synonyms: L(S)-2,6-diaminocaproic acid,
L2,6-diaminohexanoic acid, α,ε-diaminocaproic acid,
Lys[2]

The essential amino acid L-lysine is one of the three amino acids with basic side chains, and is hydrophilic in character. It contains an N-butyl amino group in the side chain, and this moiety is protonated at physiological pH. In addition, L-lysine is one of the two purely ketogenic amino acids, or amino acids that are degraded to give ketone bodies. Lysine is degraded *in vivo* to give acetoacetyl CoA via an initial transamination with α-ketoglutarate.[2,3,4]

L-lysine has been used with cultured human osteoblasts to study cell proliferation.[5] Exogenous L-lysine has been utilized in *Nocardia lactamdurans* to enhance cephamycin C production.[6] The inhibition of the chymotrypsin-like activity of a proteasome preparation by various amino acids, including lysine, has been investigated.[7] A stable isotope MALDI-TOF mass spectrometry method for the detection of lysine in cultivated *Corynebacterium glutamicum* 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 water (100 mg/ml), yielding a clear, colorless solution.

References

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3. Biochemistry, 3rd ed., Stryer, L., W. H. Freeman (New York, NY: 1988), pp. 19-20.
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5. Torricelli, P., et al., L-arginine and L-lysine stimulation on cultured human osteoblasts. Biomed. Pharmacother., **56(10)**, 492-497 (2002).
6. Leitao, A. L., et al., Effect of exogenous lysine on the expression of early cephamycin C biosynthetic genes and antibiotic production in *Nocardia lactamdurans* MA4213. Appl. Microbiol. Biotechnol., **56(5-6)**, 670-675 (2001).
7. Hamel, F. G., et al., Inhibition of proteasome activity by selected amino acids. Metabolism, **52(7)**, 810-814 (2003).
8. Wittmann, C., and Heinzle, E., MALDI-TOF MS for quantification of substrates and products in cultivations of *Corynebacterium glutamicum*. Biotechnol. Bioeng., **72(6)**, 642-647 (2001).

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