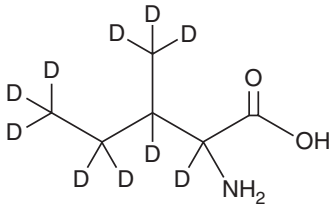
PRODUCT INFORMATION

Isoleucine-d_{10}

Item No. 34842

CAS Registry No.:	29909-02-2
Formal Name:	isoleucine-2,3,3′,3′,3′,4,4,5,5,5-d_{10}
MF:	$C_6H_3D_{10}NO_2$
FW:	141.2
Chemical Purity:	≥98% (mixture of isomers) (Isoleucine)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_{10}); ≤1% d_0
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Isoleucine-d_{10} is intended for use as an internal standard for the quantification of isoleucine (Item No. 41562) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Description

Isoleucine is a mixture of the diastereomers L-isoleucine, L-alloisoleucine, D-isoleucine, and D-alloisoleucine. L-Isoleucine is an essential branched-chain amino acid that acts as a nitrogen donor and has roles in glucose consumption, fatty acid metabolism, and immune function.[1-3] L-Alloisoleucine is formed from L-isoleucine by transamination, and plasma levels of L-alloisoleucine are increased in patients with maple syrup urine disease (MSUD), an inborn error of metabolism characterized by branched-chain α-keto acid dehydrogenase (BCKAD) deficiency.[4,5] D-Isoleucine and D-alloisoleucine are enantiomers of L-isoleucine and L-alloisoleucine, respectively.

Reference

1. Yamamoto, K., Tsuchisaka, A., and Yukawa, H. Branched-chain amino acids. *Amino acid fermentation*. Yokota, A. and Ikeda, M., editors, *Springer Japan* (2017).
2. Nie, C., He, T., Zhang, W., *et al.* Branched chain amino acids: Beyond nutrition metabolism. *Int. J. Mol. Sci.* **19(4)**, 954 (2018).
3. Zhang, S., Zeng, X., Ren, M., *et al.* Novel metabolic and physiological functions of branched chain amino acids: A review. *J. Anim. Sci. Biotechnol.* **8**, 10 (2017).
4. Schadewaldt, P., Bodner-Leidecker, A., Hammen, H.W., *et al.* Formation of L-alloisoleucine *in vivo*: An L-[^{13}C]isoleucine study in man. *Pediatr. Res.* **47(2)**, 271-277 (2000).
5. Schadewaldt, P., Bodner-Leidecker, A., Hammen, H.W., *et al.* Significance of L-alloisoleucine in plasma for diagnosis of maple syrup urine disease. *Clin. Chem.* **45(10)**, 1734-1740 (1999).

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