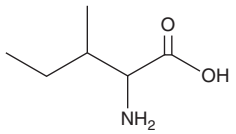
PRODUCT INFORMATION

Isoleucine

Item No. 41562

CAS Registry No.:	2095501-92-9
Formal Name:	2-amino-3-methyl-pentanoic acid
MF:	$C_6H_{13}NO_2$
FW:	131.2
Purity:	≥98%
Supplied as:	A solid
Storage:	-20°C
Stability:	≥2 years



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

Laboratory Procedures

Isoleucine is supplied as a solid. A stock solution may be made by dissolving the isoleucine in the solvent of choice, which should be purged with an inert gas. Isoleucine is slightly soluble (0.1-1 mg/ml) in acetonitrile and sparingly soluble (1-10 mg/ml) in DMSO.

Isoleucine is slightly soluble (0.1-1 mg/ml) in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

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.

References

1. Yamamoto, K., Tsuchisaka, A., and Yukawa, H. Branched-chain amino acids. *Amino acid fermentation* 103-128 (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).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM