

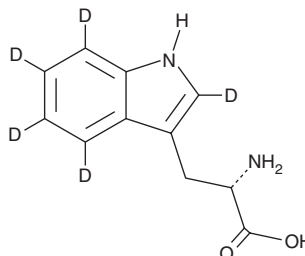
PRODUCT INFORMATION



L-Tryptophan-d₅

Item No. 34829

CAS Registry No.: 62595-11-3
Formal Name: L-tryptophan-2,4,5,6,7-d₅
Synonym: (-)-Tryptophan-d₅
MF: C₁₁H₇D₅N₂O₂
FW: 209.3
Chemical Purity: ≥98% (L-Tryptophan)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₅); ≤1% d₀
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

L-Tryptophan-d₅ is intended for use as an internal standard for the quantification of L-tryptophan (Item No. 29600) 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

L-Tryptophan is an essential amino acid.¹ It serves as a substrate for tryptophan hydroxylase (TPH), indoleamine-2,3-dioxygenase (IDO), and tryptophan-2,3-dioxygenase (TDO) for the biosynthesis of serotonin (5-HT; Item No. 14332) and kynurenine (Item No. 11305).² L-Tryptophan is also metabolized by enteric bacteria expressing tryptophanase into indole, pyruvate, and ammonia.³ It increases 5-HT, 5-hydroxy-L-tryptophan (5-HTP), and 5-hydroxy indole-3-acetic acid (5-HIAA) levels in the diencephalon of rats when administered at a dose of 300 mg/kg.⁴ L-Tryptophan decreases immobility time in the forced swim test in rats when administered at doses of 4 and 20 mg/kg per day for eight weeks.⁵

References

1. Richard, D.M., Dawes, M.A., Mathias, C.W., *et al.* L-Tryptophan: Basic metabolic functions, behavioral research and therapeutic indication. *Int. J. Tryptophan Res.* **2**, 45-60 (2009).
2. O'Mahony, S.M., Clarke, G., Borre, Y.E., *et al.* Serotonin, tryptophan metabolism and the brain-gut-microbiome axis. *Behav. Brain Res.* **277**, 32-48 (2015).
3. Wikoff, W.R., Anfora, A.T., Liu, J., *et al.* Metabolomics analysis reveals large effects of gut microflora on mammalian blood metabolites. *Proc. Natl. Acad. Sci. USA* **106(10)**, 3698-3703 (2009).
4. Esteban, S., Nicolaus, C., Garmundi, A., *et al.* Effect of orally administered L-tryptophan on serotonin, melatonin, and the innate immune response in the rat. *Mol. Cell Biochem.* **267(1-2)**, 39-46 (2004).
5. Ouakki, S., El Mrabet, F.Z., El Hessni, A., *et al.* Conversion of L-tryptophan into melatonin is the possible action pathway involved in the effect of L-tryptophan on antidepressant-related behavior in female rats: Analysis of the influence of treatment duration. *J. Behav. Brain Sci.* **3(4)**, 362-372 (2013).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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