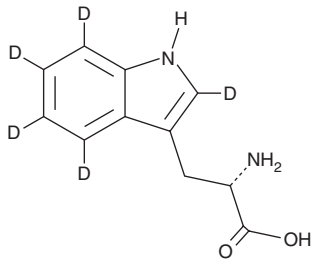
PRODUCT INFORMATION

L-Tryptophan-d_5

Item No. 34829

CAS Registry No.:	62595-11-3
Formal Name:	L-tryptophan-2,4,5,6,7-d_5
Synonym:	(–)-Tryptophan-d_5
MF:	$C_{11}H_7D_5N_2O_2$
FW:	209.3
Chemical Purity:	≥98% (L-Tryptophan)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_5); ≤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

L-Tryptophan-d_5 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

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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).

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