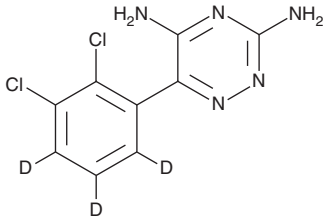
PRODUCT INFORMATION

Lamotrigine-d_3

Item No. 37196

CAS Registry No.: 1132746-94-1
Formal Name: 6-(5,6-dichlorophenyl-2,3,4-d_3)-1,2,4-triazine-3,5-diamine
Synonym: LTG-d_3
MF: $C_9H_4Cl_2D_3N_5$
FW: 259.1
Chemical Purity: ≥98% (Lamotrigine)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_3); ≤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

Lamotrigine-d_3 is intended for use as an internal standard for the quantification of lamotrigine (Item No. 15428) 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).

Lamotrigine-d_3 is supplied as a solid. A stock solution may be made by dissolving the lamotrigine-d_3 in the solvent of choice, which should be purged with an inert gas. Lamotrigine-d_3 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of lamotrigine-d_3 in ethanol is approximately 2 mg/ml and approximately 10 mg/ml in DMSO and DMF.

Description

Lamotrigine is an anticonvulsant.[1] It inhibits voltage-gated sodium channels (Na_v) in HEK293 cells expressing recombinant human $Na_v1.2$, $Na_v1.5$, or $Na_v1.8$ (IC_{50}s = 10, 62, and 96 µM, respectively), as well as high voltage-activated calcium currents in isolated rat cortical neurons (IC_{50} = 12.3 µM), an effect that can be reversed by the N-type calcium channel blocker ω-conotoxin GVIA (Item No. 24114) and P-type calcium channel blocker ω-agatoxin IVA (Item No. 21605).[1,2] Lamotrigine protects against seizures induced by maximal electroshock (MES) in mice and rats (ED_{50}s = 10.1 and 7.4 µmol/kg, respectively).[3] It also decreases mechanical allodynia in a rat model of neuropathic pain induced by spinal nerve ligation (ED_{50} = 47 µmol/kg).[1] Formulations containing lamotrigine have been used in the treatment of epilepsy and bipolar disorder.

References

1. Drizin, I., Gregg, R.J., Scanio, M.J., *et al.* Discovery of potent furan piperazine sodium channel blockers for treatment of neuropathic pain. *Bioorg. Med. Chem.* **16(12)**, 6379-6386 (2008).
2. Stefani, A., Spadoni, F., Siniscalchi, A., *et al.* Lamotrigine inhibits Ca^{2+} currents in cortical neurons: Functional implications. *Eur. J. Pharmacol.* **307(1)**, 113-116 (1996).
3. Miller, A.A., Wheatley, P., Sawyer, D.A., *et al.* Pharmacological studies on lamotrigine, a novel potential antiepileptic drug: I. Anticonvulsant profile in mice and rats. *Epilepsia* **27(5)**, 483-489 (1986).

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