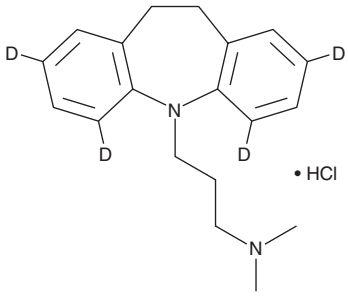
PRODUCT INFORMATION

Imipramine-d_4 (hydrochloride)

Item No. 43809

CAS Registry No.: 61361-33-9
Formal Name: 10,11-dihydro-N,N-dimethyl-5H-dibenz[b,f]azepine-2,4,6,8-d_4-5-propanamine, monohydrochloride
Synonym: Melipramine-d_4
MF: $C_{19}H_{20}D_4N_2 \bullet HCl$
FW: 320.9
Chemical Purity: ≥98% (Imipramine)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_4); ≤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

Imipramine-d_4 is intended for use as an internal standard for the quantification of imipramine (Item No. 15890) 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).

Imipramine-d_4 (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the imipramine-d_4 (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Imipramine-d_4 (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of imipramine-d_4 (hydrochloride) in these solvents is approximately 25 mg/ml.

Description

Imipramine is a first generation tricyclic antidepressant.[1] It inhibits serotonin (5-HT) uptake by isolated human platelets by 54 and 79% when used at concentrations of 1 and 4 µg/ml, respectively, and inhibits norepinephrine uptake in rat brain by 63% when administered at a dose of 20 mg/kg.[2,3] It also binds to histamine H_1, M_1 muscarinic acetylcholine, and α_1-adrenergic receptors (K_ds = 37, 46, and 32 nM, respectively).[4] Imipramine (10 and 20 µM) prevents acid sphingomyelinase activation and subsequent ceramide release induced by infection with replication-deficient vesicular stomatitis virus pseudoviral particles (pp-VSV) presenting the severe acute respiratory coronavirus 2 (SARS-CoV-2) spike protein in Vero cells, an effect that can be overcome with exogenous application of C16 ceramide (d18:1/16:0) (Item No. 10681).[5] Formulations containing imipramine have been used in the treatment of depression and as an adjunct in the treatment of childhood enuresis.

References

1. Spencer, P.S. *Br. J. Clin. Pharmacol.* **4(Suppl 2)**, 57S-68S (1977).
2. Yates, C.M., Todrick, A., and Tait, A.C. *J. Pharm. Pharmacol.* **16**, 460-463 (1964).
3. Glowinski, J. and Axelrod, J. *Nature* **204**, 1318-1319 (1964).
4. Cusack, B., Nelson, A., and Richelson, E. *Psychopharmacology (Berl.)* **114(4)**, 559-565 (1994).
5. Carpinteiro, A., Edwards, M.J., Hoffmann, M., *et al. Cell Rep. Med.* **1(8)**, 100142 (2020).

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