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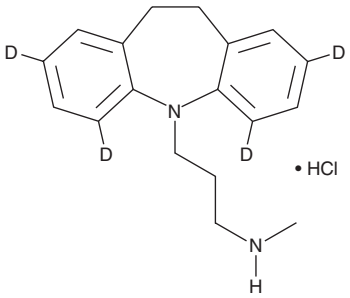
PRODUCT INFORMATION

Desipramine-d_4 (hydrochloride)

Item No. 36849

CAS Registry No.:	61361-34-0
Formal Name:	10,11-dihydro-N-methyl-5H-dibenz[b,f]azepine-2,4,6,8-d_4-5-propanamine, monohydrochloride
Synonyms:	Demethylimipramine-d_4, Desimipramine-d_4, Desmethylimipramine-d_4, DMI-d_4
MF:	$C_{18}H_{18}D_4N_2 \bullet HCl$
FW:	306.9
Chemical Purity:	≥98% (Desipramine)
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

Desipramine-d_4 (hydrochloride) is intended for use as an internal standard for the quantification of desipramine 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

Desipramine is a tricyclic antidepressant and an active metabolite of imipramine (Item No. 15890).[1] It inhibits the serotonin (5-HT) and norepinephrine transporters (K_is = 163 and 3.5 nM for human SERT and NET, respectively) and is an antagonist of the 5-HT receptor subtype 5-HT_{2A} and the α_1-adrenergic receptor (α_1-AR), as well as histamine H_1 and muscarinic acetylcholine receptors (mAChRs; K_is = 115, 23, 31, and 37 nM, respectively). Desipramine is selective for the 5-HT_{2A} receptor over the 5-HT_{1A} receptor (K_i = 2,272 nM) and for α_1-AR over α_2-AR (K_i = 1,379 nM). It also selectively inhibits G protein-activated inward rectifier potassium channel (GIRK), also known as K_{ir}3, currents in *Xenopus* oocytes expressing human GIRK1 and GIRK2 or human GIRK1 and GIRK4 (IC_{50}s = 36.4 and 53.9 µM, respectively) over K_{ir}1.1 or K_{ir}2.1 currents in *Xenopus* oocytes expressing the human channels (IC_{50}s = >100 µM for both).[2] Desipramine (3.2 mg/kg) decreases immobility time in the forced swim test in mice.[3] It also decreases flinching, as well as paw biting and licking, in the second phase of the formalin test in rats.[4] Formulations containing desipramine have been used in the treatment of depression.

References

1. Owens, M.J., Neal, W., Plott, S.J., *et al. J. Pharmacol. Exp. Ther.* **283(3),** 1305-1322 (1997).
2. Kobayashi, T., Washiyama, K., and Ikeda, K. *Neuropsychopharmacology* **29(10),** 1841-1851 (2004).
3. Koek, W., Sandoval, T.L., and Daws, L.C. *Behav. Pharmacol.* **29(5),** 453-456 (2018).
4. Swaynok, J., Esser, M.J., and Reid, A.R. *Pain* **82(2),** 149-158 (1999).

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