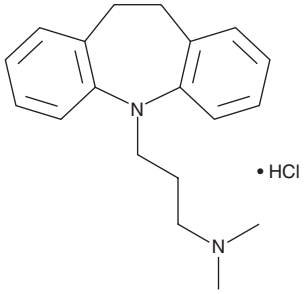
# PRODUCT INFORMATION

## Imipramine (hydrochloride)

*Item No. 15890*

**CAS Registry No.:** 113-52-0
**Formal Name:** 10,11-dihydro-N,N-dimethyl-5H-dibenz[b,f] azepine-5-propanamine, monohydrochloride
**Synonym:** Melipramine
**MF:** $C_{19}H_{24}N_2 \bullet HCl$
**FW:** 316.9
**Purity:** ≥98%
**UV/Vis.:** 212, 250 nm
**Supplied as:** A crystalline 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 (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the imipramine (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Imipramine (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of imipramine (hydrochloride) in these solvents is approximately 25 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of imipramine (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of imipramine (hydrochloride) in PBS (pH 7.2) is approximately 0.5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### 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 $\alpha_1$-adrenergic receptors ($K_d$s = 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 (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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