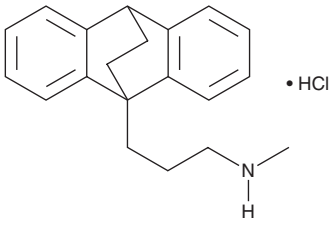
PRODUCT INFORMATION

Maprotiline (hydrochloride)

Item No. 15892

CAS Registry No.:	10347-81-6
Formal Name:	N-methyl-9,10-ethanoanthracene-9(10H)-propanamine, monohydrochloride
Synonym:	Ba 34276
MF:	$C_{20}H_{23}N$ • HCl
FW:	313.9
Purity:	≥98%
UV/Vis.:	λ_{max}: 272 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

Maprotiline (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the maprotiline (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Maprotiline (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of maprotiline (hydrochloride) in these solvents is approximately 15, 30, and 20 mg/ml, respectively.

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 maprotiline (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of maprotiline (hydrochloride) in PBS, pH 7.2, is approximately 0.1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Maprotiline is a tricyclic antidepressant.[1,2] It binds to the norepinephrine transporter (NET; K_d = 11 nM) and is selective for NET over the serotonin (5-HT) and dopamine transporters (K_ds = 5,800 and 1,000 nM, respectively).[2] Maprotiline also binds to the 5-HT receptor subtype 5-HT_{2A} (KI = 51 nM), as well as histamine H_1, muscarinic acetylcholine, α_1-adrenergic, and dopamine D_2 receptors (K_ds = 2, 570, 90, and 350 nM, respectively).[3] *In vivo*, maprotiline inhibits norepinephrine reuptake in rat brain and peripheral tissues.[4] It reduces isolation-induced aggressive behavior and inhibits electrical foot-shock stimulation-induced belligerence in mice when administered at doses ranging from 3 to 10 mg/kg. Maprotiline (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 maprotiline have been used in the treatment of depression and anxiety. This product is also available as an analytical reference material (Item Nos. 32702 | 33077).

References

1. Spencer, P.S. *Br. J. Clin. Pharmacol.* **4(Suppl 2)**, 57S-68S (1977).
2. Tatsumi, M., Groshan, K., Blakely, R.D., *et al. Eur. J. Pharmacol.* **340(2-3)**, 249-258 (1997).
3. Richelson, E. and Nelson, A. *J. Pharmacol. Exp. Ther.* **230(1)**, 94-102 (1984).
4. Pinder, R.M., Brogden, R.N., Speight, T.M., *et al. Drugs* **13(5)**, 321-352 (1977).
5. Stahl, W., Heinrich, U., Aust, O., *et al. Photochem. Photobiol. Sci.* **5(2)**, 238-242 (2006).

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