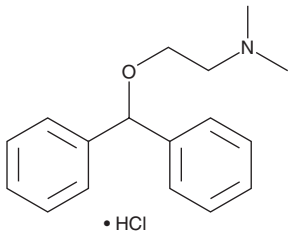
PRODUCT INFORMATION

Diphenhydramine (hydrochloride)

Item No. 11158

CAS Registry No.:	147-24-0
Formal Name:	2-(diphenylmethoxy)-N,N-dimethyl-ethanamine, monohydrochloride
Synonym:	DPH
MF:	$C_{17}H_{21}NO \bullet HCl$
FW:	291.8
Purity:	≥98%
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

Diphenhydramine (DPH) (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the DPH (hydrochloride) in the solvent of choice, which should be purged with an inert gas. DPH (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of DPH (hydrochloride) in these solvents is approximately 30, 20, and 10 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 DPH (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of DPH (hydrochloride) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Diphenhydramine (DPH) is a first generation antihistamine that is a potent antagonist of the histamine H_1 receptor (K_i = 11.7 nM using human recombinant receptors).[1,2] DPH readily crosses the blood-brain barrier and produces diverse cognitive and psychomotor effects.[1,3] DPH also antagonizes muscarinic cholinergic receptors (K_is = 100 to 260 nM for M_1-M_5), increasing the range of central nervous system effects and applications.[4] This product is also available as an analytical reference standard (Item No. 22489).

References

1. Thurmond, R.L., Gelfand, E.W., and Dunford, P.J. The role of histamine H_1 and H_4 receptors in allergic inflammation: The search for new antihistamines. *Nat. Rev. Drug Discov.* **7(1)**, 41-53 (2008).
2. Booth, R.G., Moniri, N.H., Bakker, R.A., *et al.* A novel phenylaminotetralin radioligand reveals a subpopulation of histamine H_1 receptors. *J. Pharmacol. Exp. Ther.* **302(1)**, 328-336 (2002).
3. Kay, G.G. and Harris, A.G. Loratadine: A non-sedating antihistamine. Review of its effects on cognition, psychomotor performance, mood and sedation. *Clin. Exp. Allergy* **29(Suppl 3)**, 147-150 (1999).
4. Bolden, C., Cusack, B., and Richelson, E. Antagonism by antimuscarinic and neuroleptic compounds at the five cloned human muscarinic cholinergic receptors expressed in Chinese hamster ovary cells. *J. Pharmacol. Exp. Ther.* **260(2)**, 576-580 (1992).

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