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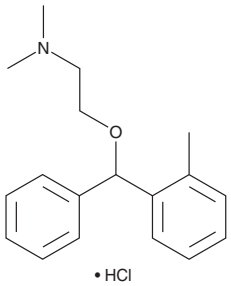
PRODUCT INFORMATION

Orphenadrine (hydrochloride)

Item No. 26391

CAS Registry No.: 341-69-5
Formal Name: N,N-dimethyl-2-[(2-methylphenyl) phenylmethoxy]-ethanamine, monohydrochloride
Synonym: NSC 82357
MF: $C_{18}H_{23}NO \bullet HCl$
FW: 305.8
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Orphenadrine (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the orphenadrine (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Orphenadrine (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of orphenadrine (hydrochloride) in ethanol is approximately 10 mg/ml and approximately 33 mg/ml in DMSO and DMF.

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 orphenadrine (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of orphenadrine (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

Orphenadrine is a muscarinic acetylcholine receptor (mAChR) antagonist (K_ds = 48, 213, 120, 170, and 129 nM for M_1-M_5 receptors, respectively).[1] Orphenadrine (2-5 mg/kg, i.v.) decreases muscle activity induced by the mAChR agonist oxotremorine in rabbits.[2] It is also an NMDA receptor antagonist with a K_i value of 6 µM in a radioligand binding assay in human postmortem frontal cortex and an IC_{50} value of 16.2 µM for inhibiting steady state currents in cultured superior colliculus neurons.[3] Formulations containing orphenadrine have been used in the treatment of acute painful musculoskeletal conditions, including muscle spasms.

References

1. Stanton, T., Bolden-Watson, C., Cusack, B., *et al.* Antagonism of the five cloned human muscarinic cholinergic receptors expressed in CHO-K1 cells by antidepressants and antihistaminics. *Biochem. Pharmacol.* **45(11)**, 2352-2354 (1993).
2. Ban, T. and Hojo, M. A comparative study of the effects of anti-parkinson drugs on the oxotremorine-induced EEG and muscular activities. *Psychopharmacologia* **19(1)**, 1-15 (1971).
3. Kornhuber, J., Parsons, C.G., Hartmann, S., *et al.* Orphenadrine is an uncompetitive N-methyl-D-aspartate (NMDA) receptor antagonist: Binding and patch clamp studies. *J. Neural Transm. Gen. Sect.* **102(3)**, 237-246 (1995).

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