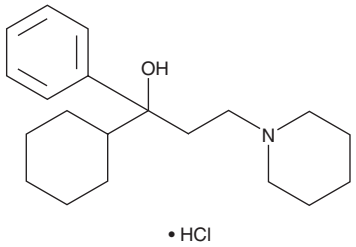
PRODUCT INFORMATION

Trihexyphenidyl (hydrochloride)

Item No. 27643

CAS Registry No.: 52-49-3
Formal Name: α-cyclohexyl-α-phenyl-1-piperidinepropanol, monohydrochloride
Synonym: Benzhexol hydrochloride
MF: $C_{20}H_{31}NO \bullet HCl$
FW: 337.9
Purity: ≥98%
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

Trihexyphenidyl (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the trihexyphenidyl (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Trihexyphenidyl (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of trihexyphenidyl (hydrochloride) in ethanol is approximately 3 mg/ml and approximately 2 mg/ml in DMSO and DMF.

Trihexyphenidyl (hydrochloride) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, trihexyphenidyl (hydrochloride) should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. Trihexyphenidyl (hydrochloride) has a solubility of approximately 0.2 mg/ml in a 1:4 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Trihexyphenidyl is an antagonist of M_1 muscarinic acetylcholine receptors.[1] It binds to rat M_1 receptors in cerebral cortex selectively over rat M_2 receptors in heart tissue (IC_{50}s = 3.7 and 31 nM, respectively). Trihexyphenidyl inhibits contractions induced by acetylcholine (Item No. 23829) in guinea pig ileum (IC_{50} = 22 nM).[2] It also inhibits oxotremorine-induced tremors and physostigmine-induced mortality in mice (ED_{50}s = 2 and 3.6 mg/kg, respectively). Trihexyphenidyl (20 mg/kg) improves abnormal movement in a mouse model of L-3,4-dihydroxyphenylalanine (L-DOPA) responsive dystonia (DRD) that expresses mutant tyrosine hydroxylase (TH).[3] Formulations containing trihexyphenidyl have been used in the symptomatic treatment of Parkinson's disease.

References

1. Giachetti, A., Giraldo, E., Ladinsky, H., *et al.* Binding and functional profiles of the selective M_1 muscarinic receptor antagonists trihexyphenidyl and dicyclomine. *Br. J. Pharmacol.* **89(1),** 83-90 (1986).
2. Fjalland, B., Christensen, A.V., and Hyttel, J. Peripheral and central muscarinic receptor affinity of psychotropic drugs. *Naunyn. Schmiedebergs. Arch. Pharmacol.* **301(1),** 5-9 (1977).
3. Rose, S.J., Yu, X.Y., Heinzer, A.K., *et al.* A new knock-in mouse model of L-DOPA-responsive dystonia. *Brain* **138(Pt 10),** 2987-3002 (2015).

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