

Product Data Sheet

Product Name: Edrophonium (chloride)

Cat. No.: GC17705

Chemical Properties

Cas. No. 116-38-1

Chemical Name N-ethyl-3-hydroxy-N,N-dimethyl-benzenaminium, monochloride

SMILES OC1=CC([N+](C)(C)CC)=CC=C1.[Cl-]

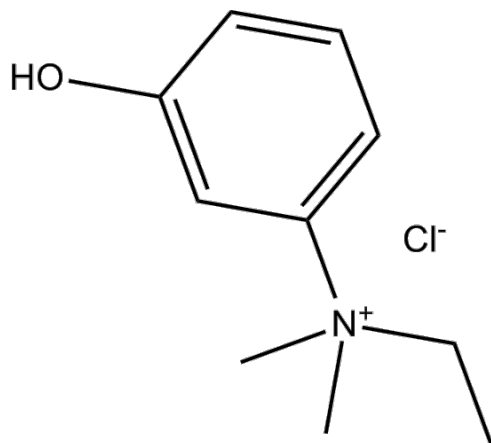
Formula $C_{10}H_{16}NO \cdot Cl$ M.Wt 201.7

Solubility DMF: 0.5 mg/ml, DMSO: 2 mg/ml, Ethanol: 10 mg/ml, PBS (pH 7.2): 10 mg/ml Storage Store at -20°C, protect from light

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

Edrophonium is a competitive inhibitor of acetylcholinesterase (AChE) [1]. AChE is an extrinsic membrane-bound enzyme that functions in the central and peripheral nervous systems. AChE rapidly

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

terminates the ACh receptor-mediated signal transmission by hydrolyzing ACh. Inhibition of AChE results in accumulation of ACh in the synaptic cleft and leads to impeded neurotransmission [2].

In vitro: Edrophonium inhibited AChE activity in human red blood cells, purified calf forebrain, and octopus brain with K_i values of 0.2, 0.2, and 0.4 μM , respectively. The IC_{50} s were 0.2, 0.05, and 0.5 μM , respectively [1].

In vivo: In symptomatic patients without coronary artery disease, edrophonium (80 $\mu\text{g/kg}$, intravenous bolus) induced chest pain [3]. Edrophonium increased esophageal amplitude and repetitive contractions. Edrophonium was useful for provoking esophageal chest pain [3]. In infants and children during N₂O-halothane anesthesia, the ED₅₀ for edrophonium is 128 $\mu\text{g/kg}$ for adults [4]. In patients anaesthetized with nitrous oxide and halothane undergoing kidney transplant nephrectomy or transplantation of a live related donor kidney, patients undergoing transplant nephrectomy showed a significant increase in elimination half-life and a significant decrease (67%) in serum clearance when compared with kidney transplant recipients or patients with normal renal function [5].

References:

- [1] Boyle N A J, Talesa V, Giovannini E, et al. Synthesis and study of thiocarbonate derivatives of choline as potential inhibitors of acetylcholinesterase[J]. Journal of medicinal chemistry, 1997, 40(19): 3009-3013.
- [2] Quinn D M. Acetylcholinesterase: enzyme structure, reaction dynamics, and virtual transition states[J]. Chemical Reviews, 1987, 87(5): 955-979.
- [3] Cronnelly R, Morris R B, Miller R D. Edrophonium: duration of action and atropine requirement in humans during halothane anesthesia[J]. Anesthesiology, 1982, 57(4): 261-266.
- [4] Fisher D M, Cronnelly R, Sharma M, et al. Clinical pharmacology of edrophonium in infants and children[J]. Anesthesiology, 1984, 61(4): 428-433.
- [5] Morris R B, Cronnelly R, Miller R D, et al. Pharmacokinetics of edrophonium in anephric and renal transplant patients[J]. British journal of anaesthesia, 1981, 53(12): 1311-1314.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA