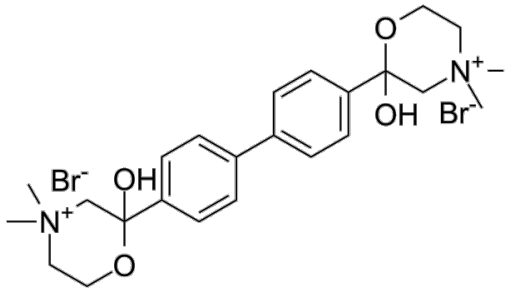
Product Data Sheet

Product Name: Hemicholinium 3
Cat. No.: GC64193

Chemical Properties

Cas. No.	312-45-8		
Formula	C24H34Br2N2O4	M.Wt	574.35
Solubility	Water : 33.33 mg/mL (58.03 mM; Need ultrasonic)	Storage	Store at -20°C
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

Hemicholinium 3 is a competitive inhibitor of the high-affinity choline transporter (HACU) with a Ki value of 25 nM. Hemicholinium 3, is a neuromuscular blocking agent which inhibits the synthesis and

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the release of acetylcholine (ACh)[1]. Hemicholinium 3 inhibits the Epibatidine-evoked contraction and [3H]acetylcholine release with IC50s of 897 nM and 693 nM, respectively[2].

Hemicholinium 3 (HC-3) inhibits the presynaptic nicotinic acetylcholine receptors of myenteric neurons. HC-3 inhibits nAChRs located on the terminal region of myenteric neurons of guinea-pig longitudinal muscle strip preparation[2]. Hemicholinium 3 (HC-3) inhibits[3H]choline uptake with the Ki value of 13.3 μM in NCI-H69 cells[3].HC-3 (1 mM) significantly inhibits cell viability and increases caspase-3/7 activity in NCI-H69 cells[3]. Hemicholinium 3 (Hemicholinium-3) inhibits sodium-dependent high-affinity choline uptake (IC50=18 nM)[4]. In vivo: Hemicholinium-3 impairs spatial learning. HC-3 (2.5, 5.0 μg/rat/ICV; 1 h before training) dose-dependently impairs spatial learning[5].

References:
[1]. PATRICE GUYENET, et al. Inhibition by Hemicholinium-3 of [14C] Acetylcholine Synthesis and [3H] Choline High-Affinity Uptake in Rat Striatal Synaptosomes.Molecular Pharmacology September 1973, 9 (5) 630-639.
[2]. PÉter Mandl, et al. Inhibitory effect of hemicholinium-3 on presynaptic nicotinic acetylcholine receptors located on the terminal region of myenteric motoneurons. Neurochem Int. 2006 Sep;49(4):327-33.
[3]. Masato Inazu, et al. Functional expression of choline transporter-like protein 1 (CTL1) in small cell lung carcinoma cells: a target molecule for lung cancer therapy. Pharmacol Res. 2013 Oct;76:119-31.
[4]. T K Chatterjee, et al. Methylpiperidine analog of hemicholinium-3: a selective, high-affinity non-competitive inhibitor of sodium-dependent choline uptake system. Eur J Pharmacol. 1988 May 10;149(3):241-8.
[5]. J J Hagan, et al. Hemicholinium-3 impairs spatial learning and the deficit is reversed by cholinomimetics. Psychopharmacology (Berl). 1989;98(3):347-56.

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