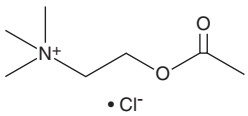
PRODUCT INFORMATION

Acetylcholine (chloride)

Item No. 23829

CAS Registry No.:	60-31-1
Formal Name:	2-(acetyloxy)-N,N,N-trimethyl-ethanaminium, monochloride
Synonym:	ACh
MF:	$C_7H_{16}NO_2 \bullet Cl$
FW:	181.7
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

Acetylcholine (chloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the acetylcholine (chloride) in the solvent of choice, which should be purged with an inert gas. Acetylcholine (chloride) is soluble in the organic solvent DMSO at a concentration of approximately 0.1 mg/ml.

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 acetylcholine (chloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of acetylcholine (chloride) in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Acetylcholine is a neurotransmitter that binds to nicotinic and muscarinic acetylcholine receptors (AChRs) in the central and peripheral nervous systems.[1] It mediates motor function at the neuromuscular junction but also has functions in the parasympathetic and sympathetic nervous systems. It is involved in learning and memory through actions at nicotinic AChRs in the CNS. The actions of acetylcholine are terminated primarily *via* the action of acetylcholinesterase, which breaks it down into acetate and choline. Acetylcholine (chloride) mimics the effects of acetylcholine and has been used to determine the function of acetylcholine in various biological processes.[2,3] Acetylcholine (chloride) inhibits peptide aggregation of p53 mutants *in vitro* at micromolar concentrations.[2] It increases alveolar fluid clearance in a dose-dependent manner and enhances Na^+/K^+-ATPase activity, effects which are blocked by atropine (Item No. 12008), in a mouse model of pulmonary edema.[3]

References

1. Tiwari, P., Dwivedi, S., Singh, M.P., *et al.* Basic and modern concepts on cholinergic receptor: A review. *Asian Pac. J. Trop. Dis.* **3(5)**, 413-420 (2013).
2. Chen, Z. and Kanapathipillai, M. Inhibition of p53 mutant peptide aggregation in vitro by cationic osmolyte acetylcholine chloride. *Protein Pept. Lett.* **24(4)**, 353-357 (2017).
3. Li, X., Yan, X.X., Li, H.L., *et al.* Endogenous acetylcholine increases alveolar epithelial fluid transport via activation of alveolar epithelial Na,K-ATPase in mice. *Respir. Physiol. Neurobiol.* **217**, 25-31 (2015).

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