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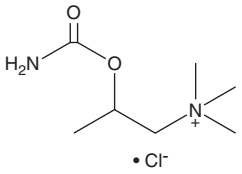
PRODUCT INFORMATION

Bethanechol (chloride)

Item No. 23830

CAS Registry No.: 590-63-6
Formal Name: 2-[(aminocarbonyl)oxy]-N,N,N-trimethyl-1-propanaminium, monochloride
Synonyms: (±)-Bethanechol, Carbamyl-β-methylcholine, NSC 30783
MF: $C_7H_{17}N_2O_2$ • Cl
FW: 196.7
Purity: ≥95%
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

Bethanechol (chloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the bethanechol (chloride) in the solvent of choice. Bethanechol (chloride) is soluble in the organic solvent DMSO, which should be purged with an inert gas 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 bethanechol (chloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of bethanechol (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

Bethanechol is an agonist of muscarinic acetylcholine receptors with IC_{50} values of 1,837, 25, 631, 317, and 393 µM for $M_{1\text{-}5}$, respectively, in a radioligand binding assay using CHO cells expressing the human receptors.[1] It inhibits M_2-mediated increases in cyclic AMP induced by isoproterenol (Item No. 15592) in isolated guinea pig small intestine (IC_{50} = 127 µM).[2] Bethanechol increases basal tone of isolated porcine intravesical ureter (EC_{50} = 4.27 µM).[3] It also induces fluid secretion in the ileum, duodenum, and jejunum of anesthetized rats when administered at a dose of 60 µg/kg.[4] Formulations containing bethanechol have been used to increase urination and improve smooth muscle tone in the gastrointestinal tract.

References

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2. Okamoto, H., Prestwich, S.A., Asai, S., *et al.* Muscarinic agonist potencies at three different effector systems linked to the M_2 or M_3 receptor in longitudinal smooth muscle of guinea-pig small intestine. *Br. J. Pharmacol.* **135(7)**, 1765-1775 (2002).
3. Hernández, M., Símonsen, U., Prieto, D., *et al.* Different muscarinic receptor subtypes mediating the phasic activity and basal tone of pig isolated intravesical ureter. *Br. J. Pharmacol.* **110(4)**, 1413-1420 (1993).
4. Young, A. and Levin, R.J. Intestinal hypersecretion of the refed starved rat: A model for alimentary diarrhoea. *Gut* **33(8)**, 1050-1056 (1992).

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