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Lieferung & Zahlungsart

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Zuschläge

- Mindermengenzuschlag
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Acetylcholine chloride

Cat. No.: HY-B0282

CAS No.: 60-31-1

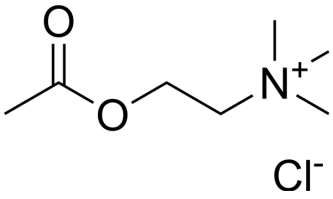
Molecular Formula: $C_7H_{16}ClNO_2$

Molecular Weight: 181.66

Target: Calcium Channel; Endogenous Metabolite; nAChR

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling; Metabolic Enzyme/Protease

Storage: 4°C, sealed storage, away from moisture and light
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (550.48 mM; Need ultrasonic)
DMSO : 62.5 mg/mL (344.05 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	5.5048 mL	27.5239 mL	55.0479 mL
	5 mM	1.1010 mL	5.5048 mL	11.0096 mL
	10 mM	0.5505 mL	2.7524 mL	5.5048 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 23.33 mg/mL (128.43 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (11.45 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (11.45 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (11.45 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Acetylcholine chloride (ACh chloride), a neurotransmitter, is a potent cholinergic agonist. Acetylcholine chloride is a modulator of the activity of dopaminergic (DAergic) neurons through the stimulation of nicotinic acetylcholine receptors (nAChRs)[1][2]. Acetylcholine chloride inhibits p53 mutant peptide aggregation in vitro[5].

IC_{50} & Target

Human Endogenous Metabolite

In Vitro	Acetylcholine chloride (ACh chloride; 10 μM) opens the calcium channel and the fluorescence value and intracellular free calcium will increase significantly when the medium is with high calcium, while these will decrease when the medium is without calcium in sweat gland epithelial cells[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Acetylcholine chloride (ACh chloride; SC; 20 mg/kg; single dose) induces pronounced cholinergic stimulation and increase of mouse survival in experimental infection[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male and female out-bred albino mice weighing 18-22 g (sepsis)[4]
Dosage:	20 mg/kg
Administration:	SC; single dose
Result:	Significantly reduces mortality of mice from sepsis induced by intraperitoneal injection of 2×10^9 E. coli bacterial bodies and the blood levels of proinflammatory cytokines TNF-α, IL-1β, and IL-6.

CUSTOMER VALIDATION

- J Hazard Mater. 2023 Dec 14, 133248.
- Redox Biol. 2023 Dec 18:69:103004.
- Mol Metab. 2023 Sep 26, 101811.
- Front Cardiovasc Med. 2021 Jun 16;8:679240.
- BMC Pulm Med. 2021 Jun 5;21(1):189.

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REFERENCES

[1]. Prashant Tiwari, et al. Basic and modern concepts on cholinergic receptor: A review. Asian Pac J Trop Dis. 2013 Oct;3(5): 413-420.

[2]. A Young, et al. Diarrhoea of famine and malnutrition--investigations using a rat model. 2--Ileal hypersecretion induced by starvation. Gut. 1990 Feb;31(2):162-9.

[3]. Xia Lei, et al. Effects of acetylcholine chloride on intracellular calcium concentration of cultured sweat gland epithelial cells. Arch Dermatol Res. 2008 Aug;300(7):335-41.

[4]. P F Zabrodskii, et al. Effect of acetylcholine on mortality of mice from sepsis and proinflammatory cytokine production. Bull Exp Biol Med. 2011 Jan;150(3):340-2.

[5]. Zhaolin Chen, et al. Inhibition of p53 Mutant Peptide Aggregation In Vitro by Cationic Osmolyte Acetylcholine Chloride. Protein Pept Lett. 2017;24(4):353-357.

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