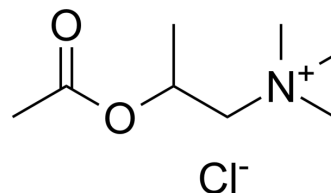


Methacholine chloride

Cat. No.:	HY-A0083
CAS No.:	62-51-1
Molecular Formula:	C ₈ H ₁₈ ClNO ₂
Molecular Weight:	195.69
Target:	mAChR
Pathway:	GPCR/G Protein; Neuronal Signaling
Storage:	4°C, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (511.01 mM; Need ultrasonic)
H₂O : 100 mg/mL (511.01 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	5.1101 mL	25.5506 mL	51.1012 mL
	5 mM	1.0220 mL	5.1101 mL	10.2202 mL
	10 mM	0.5110 mL	2.5551 mL	5.1101 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 130 mg/mL (664.32 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (12.78 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (12.78 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (12.78 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Methacholine (Acetyl-β-methylcholine) chloride is a potent muscarinic-3 (M3) agonist. Methacholine chloride acts directly on acetylcholine receptors on smooth muscle causing bronchoconstriction and airway narrowing. Methacholine chloride shows a high sensitivity to identify bronchial hyperresponsiveness (BHR). Methacholine chloride can be used to measure airway hyperresponsiveness (AHR) as a diagnostic aid in the assessment of individuals with asthma-like symptoms and normal resting expiratory flow rates^{[1][2][3][4]}.

In Vivo

Methacholine choride (0.5 µg/kg plus 5 µg/kg/min for 30 min) induces bronchoconstriction in dogs^[4].
Methacholine choride (0.5 mg/kg; i.v.) induces bronchoconstriction was inhibited by bradykinin (4-40 µg/kg; i.v.) in a dose-dependent manner in mouse^[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	9-week female BALB/c mice ^[6]
Dosage:	0.03, 0.1, 0.3, 1 mg/kg
Administration:	I.v.
Result:	Induced severe bronchoconstriction.

CUSTOMER VALIDATION

- Aging (Albany NY). 2021 Sep 13;13(17):21729-21742.

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REFERENCES

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- [3]. Vitorasso RL, et al. Methacholine dose response curve and acceptability criteria of respiratory mechanics modeling. *Exp Lung Res*. 2020 Feb-Mar;46(1-2):23-31.
- [4]. Cohen J, et al. Relationship between airway responsiveness to neurokinin A and methacholine in asthma. *Pulm Pharmacol Ther*. 2005;18(3):171-176.
- [5]. Anderson SD, et al. Comparison of mannitol and methacholine to predict exercise-induced bronchoconstriction and a clinical diagnosis of asthma. *Respir Res*. 2009;10(1):4. Published 2009 Jan 23.
- [6]. Cockcroft DW. Methacholine challenge methods. *Chest*. 2008;134(4):678-680.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA