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Zuschläge

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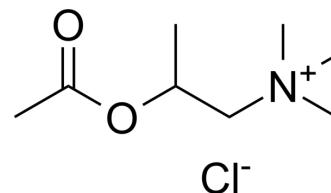
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Methacholine chloride

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)

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	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

1. Add each solvent one by one: PBS
Solubility: 130 mg/mL (664.32 mM); Clear solution; Need ultrasonic
2. 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
3. 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
4. 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 chloride (0.5 µg/kg plus 5 µg/kg/min for 30 min) induces bronchoconstriction in dogs^[4].
Methacholine chloride (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

- [1]. Kabara S, et al. Differential effects of thiopental on methacholine- and serotonin-induced bronchoconstriction in dogs. Br J Anaesth. 2003 Sep;91(3):379-84.
- [2]. Folkerts G, et al. Bradykinin causes inhibition of methacholine-induced bronchoconstriction in vivo in mice. Naunyn Schmiedebergs Arch Pharmacol. 2001 Jul;364(1):53-8.
- [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.

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