Methacholine bromide

Cat. No.: HY-A0083B

CAS No.: 333-31-3

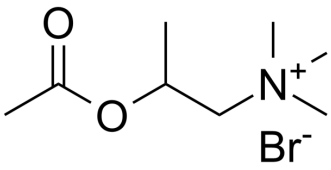
Molecular Formula: $C_8H_{18}BrNO_2$

Molecular Weight: 240.14

Target: mAChR

Pathway: GPCR/G Protein; Neuronal Signaling

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Methacholine (Acetyl-β-methylcholine) bromide is a potent muscarinic-3 (M3) agonist. Methacholine bromide acts directly on acetylcholine receptors on smooth muscle causing bronchoconstriction and airway narrowing. Methacholine bromide shows a high sensitivity to identify bronchial hyperresponsiveness (BHR). Methacholine bromide 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 bromide (0.5 μg/kg plus 5 μg/kg/min for 30 min) induces bronchoconstriction in dogs[4].
Methacholine bromide (0.5 mg/kg; i.v.) induces bronchoconstriction was inhibited by bradykinin (4-40 μg/kg; i.v.) in a 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]. Cohen J, et al. Relationship between airway responsiveness to neurokinin A and methacholine in asthma. Pulm Pharmacol Ther. 2005;18(3):171-176.

[2]. 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.

[3]. Cockcroft DW. Methacholine challenge methods. Chest. 2008;134(4):678-680.

[4]. 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.

[5]. 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.

[6]. 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.

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