

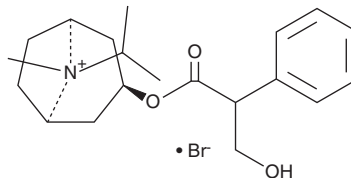
# PRODUCT INFORMATION



## Ipratropium (bromide)

Item No. 29423

**CAS Registry No.:** 22254-24-6  
**Formal Name:** (3-*endo*,8-*syn*)-3-(3-hydroxy-1-oxo-2-phenylpropoxy)-8-methyl-8-(1-methylethyl)-8-azoniabicyclo[3.2.1]octane, monobromide  
**MF:** C<sub>20</sub>H<sub>30</sub>NO<sub>3</sub> • Br  
**FW:** 412.4  
**Purity:** ≥95%  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Ipratropium (bromide) is supplied as a crystalline solid. A stock solution may be made by dissolving the ipratropium (bromide) in the solvent of choice, which should be purged with an inert gas. Ipratropium (bromide) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of ipratropium (bromide) in ethanol is approximately 1 mg/ml and approximately 5 mg/ml in DMSO and DMF.

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 ipratropium (bromide) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of ipratropium (bromide) in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Ipratropium is a muscarinic receptor antagonist (IC<sub>50</sub>s = 2.9, 2, and 1.7 nM for M<sub>1</sub>, M<sub>2</sub>, and M<sub>3</sub> receptors, respectively).<sup>1</sup> It inhibits acetylcholine-induced bronchospasm in anesthetized guinea pigs (EC<sub>50</sub> = 68 µg/ml). Aerosolized ipratropium (0.2 mg/20 ml) prevents increases in airway resistance in a rat model of cadmium inhalation-induced chronic pulmonary inflammation with airspace enlargement and reduces neutrophil counts and total cell numbers in bronchoalveolar lavage fluid (BALF) and airspace enlargement in lungs when administered in combination with formoterol (Item No. 15584).<sup>2</sup> Formulations containing ipratropium have been used in the treatment of bronchospasm associated with chronic obstructive pulmonary disease.

### References

1. Prat, M., Buil, M.A., Fernández, M.D., *et al.* Discovery of novel quaternary ammonium derivatives of (3R)-quinuclidinyl amides as potent and long acting muscarinic antagonists. *Bioorg. Med. Chem. Lett.* **25**(8), 1736-1741 (2015).
2. Zhang, W., Fievez, L., Zhang, F., *et al.* Effects of formoterol and ipratropium bromide on repeated cadmium inhalation-induced pulmonary inflammation and emphysema in rats. *Eur. J. Pharmacol.* **647**(1-3), 178-187 (2010).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 09/29/2022

#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 • USA

**PHONE:** [800] 364-9897  
[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM