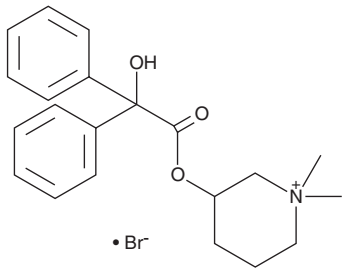
PRODUCT INFORMATION

Mepenzolate (bromide)

Item No. 23717

CAS Registry No.:	76-90-4
Formal Name:	3-[(2-hydroxy-2,2-diphenylacetyl)oxy]-1,1-dimethyl-piperidinium, monobromide
Synonym:	NSC 4358
MF:	$C_{21}H_{26}NO_3$ • Br
FW:	420.3
Purity:	≥95%
Supplied as:	A 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

Mepenzolate (bromide) is supplied as a solid. A stock solution may be made by dissolving the mepenzolate (bromide) in the solvent of choice, which should be purged with an inert gas. Mepenzolate (bromide) is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of mepenzolate (bromide) in these solvents is approximately 30 and 5 mg/ml, respectively.

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 mepenzolate (bromide) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of mepenzolate (bromide) in PBS (pH 7.2) is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Mepenzolate is an antagonist of muscarinic (M) acetylcholine receptors (K_is = 0.68 and 2.6 nM for human M_2 and M_3 receptors, respectively).[1] It has antispasmodic activity in the gastrointestinal tract of anesthetized cats and dogs when administered at a dose of 0.5 mg/kg.[2] Mepenzolate decreases airspace enlargement induced by elastase or cigarette smoke and reduces respiratory dysfunction in a mouse model of chronic obstructive pulmonary disease (COPD).[3] It also reduces oxidative stress, decreases the expression of IL-1β, IL-6, and TNF-α, and increases the expression of TGF-β1, IGF-1, and VEGF in a diabetic wound healing mouse model.[4]

References

1. Yamashita, Y., Tanaka, K.-I., Asano, T., *et al.* Synthesis and biological comparison of enantiomers of mepenzolate bromide, a muscarinic receptor antagonist with bronchodilatory and anti-inflammatory activities. *Bioorg. Med. Chem.* **22(13)**, 3488-3497 (2014).
2. Buckley, J.P., DeFeo, J.J., and Reif, E.C. The comparative antispasmodic activity of N-methyl-3-piperidyl diphenylglycolate methobromide (JB-340) and atropine sulfate. *J. Am. Pharm. Assoc.* **46(10)**, 592-594 (1957).
3. Tanaka, K.-I., Ishihara, T., Sugizaki, T., *et al.* Mepenzolate bromide displays beneficial effects in a mouse model of chronic obstructive pulmonary disease. *Nat. Commun.* **4:2686**, (2013).
4. Zheng, Y., Wang, X., Ji, S., *et al.* Mepenzolate bromide promotes diabetic wound healing by modulating inflammation and oxidative stress. *Am. J. Transl. Res.* **8(6)**, 2738-2747 (2016).

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