

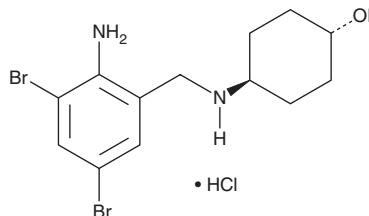
PRODUCT INFORMATION



Ambroxol (hydrochloride)

Item No. 19377

CAS Registry No.: 18683-91-5
Formal Name: *trans*-4-[[[(2-amino-3,5-dibromophenyl)methyl]amino]-cyclohexanol, monohydrochloride
Synonym: NA 872
MF: C₁₃H₁₈Br₂N₂O • HCl
FW: 414.6
Purity: ≥98%
UV/Vis.: λ_{max}: 212, 249, 317 nm
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

Ambroxol (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the ambroxol (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Ambroxol (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of ambroxol (hydrochloride) in DMSO and DMF is approximately 20 mg/ml. Ambroxol (hydrochloride) is slightly soluble in ethanol.

Description

Ambroxol is an expectorant and active metabolite of bromhexine.¹ It decreases short-circuit currents in electrically stimulated isolated canine tracheal epithelial cells when applied submucosally (IC₅₀ = 60 nM).² It inhibits the voltage-gated sodium channel Na_v1.2 in isolated dorsal root neurons (IC₅₀ = 110 μM for the rat channel).³ Ambroxol (100 μM) decreases IL-13-induced production of mucin 5AC (MUC5AC) in primary human airway epithelial cells and inhibits IL-13-induced decreases in the mucociliary transport rate of endogenous particles in the same cells.⁴ Ambroxol increases phenol red secretion, a marker of expectorant activity, in mice when administered at doses of 30, 60, or 120 mg/kg.⁵ Formulations containing ambroxol have been used in the treatment of acute or chronic respiratory conditions.

References

1. Malerba, M. and Ragnoli, B. Ambroxol in the 21st century: Pharmacological and clinical update. *Expert Opin. Drug Metab. Toxicol.* **4(8)**, 1119-1129 (2008).
2. Tamaoki, J., Chiyotani, A., Yamauchi, F., *et al.* Ambroxol inhibits Na⁺ absorption by canine airway epithelial cells in culture. *J. Pharm. Pharmacol.* **43(12)**, 841-843 (1991).
3. Weiser, T. Comparison of the effects of four Na⁺ channel analgesics on TTX-resistant Na⁺ currents in rat sensory neurons and recombinant Nav1.2 channels. *Neurosci. Lett.* **395(3)**, 179-184 (2006).
4. Seagrave, J., Albrecht, H.H., Hill, D.B., *et al.* Effects of guaifenesin, N-acetylcysteine, and ambroxol on MUC5AC and mucociliary transport in primary differentiated human tracheal-bronchial cells. *Respir. Res.* **13(1)**, 98 (2012).
5. Menezes, P.M.N., Brito, M.C., Sousa de Sá, P.G., *et al.* Analytical and pharmacological validation of the quantification of phenol red in a mouse model: An optimized method to evaluate expectorant drugs. *J. Pharmacol. Toxicol. Methods* **98**, 106586 (2019).

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.

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