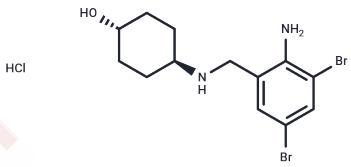
Data Sheet (Cat.No.T6234)

TargetMol

Ambroxol hydrochloride

Chemical Properties



CAS No. : 23828-92-4

Formula: C13H18Br2N2O·HCl

Molecular Weight: 414.56

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Ambroxol hydrochloride (Mucosolvan) is a metabolite of BROMHEXINE that stimulates mucociliary action and clears the air passages in the respiratory tract. It is usually administered as the hydrochloride.
Targets(IC50)	Autophagy,Sodium Channel
In vitro	At a concentration of 100 μM, Ambroxol significantly inhibits the release of histamine, LTC4, IL-4, and IL-13 induced by IgE antibodies in basophils, and reduces the release of histamine and LTB4 in monocytes triggered by C5a or yeast polysaccharide. Ambroxol also suppresses the release of histamine by more than 50% in human adenoid hypertrophy (1000 μM Ambroxol) and skin hypertrophy mast cells (100 μM Ambroxol) stimulated by ConA and compound 48/80, respectively. Furthermore, Ambroxol decreases the production of LTB4 and superoxide anion in granulocytes stimulated by yeast polysaccharides or fMLP.
In vivo	Ambroxol acts as a charged local anesthetic in CNaIIA cells, exhibiting blockade that is dependent on the number of stimulations and increases with the frequency of a series of depolarizing stimuli. In CNaIIA cells, Ambroxol's inhibition rate for inactivated channels is 5.5 times higher than that for resting channels. Ambroxol differentially affects the kinetics of Na+ currents in TTX-r (tetrodotoxin-resistant) and TTX-s (tetrodotoxin-sensitive) channels, with the response factor for TTX-r channels being only 3.3. Additionally, Ambroxol inhibits Na+ channels in sensory neurons, showing a higher potency in blocking TTX-r channels. Ambroxol also inhibits the release of histamine, leukotrienes, and cytokines from human leukocytes and mast cells.
Kinase Assay	Standard HDAC Assays: Rat liver enzyme is diluted 1:6 with HDAC buffer. Recombinant human HDACs are diluted 1:4 in HDAC buffer. For standard HDAC assays, 60 μL of HDAC buffer is mixed with 10 μL of diluted enzyme solution at 30 °C. The HDAC reaction is started by adding 30 μL substrate solution in HDAC buffer followed by 30 min of incubation at 30 °C. The reaction is stopped by adding 100 μL trypsin solutions (10 mg/ml trypsin in 50 mM Tris-HCl [pH 8.0], 100 mM NaCl, 2 μM TSA). After a 20 min incubation period at 30 °C, the release of AMC is monitored by measuring the fluorescence at 460 nm (λex = 390 nm). Fluorescence intensity is calibrated using free AMC. For standard time course experiments, 20 pmol of substrate is used in the initial 100 μL HDAC reaction. Km and Vmax values are determined by measuring the fluorescence AMC generated by enzymatic cleavage of 2-50 pmol of substrate. The experimental data are analyzed using a Hanes plot. The AMC signals are recorded

against a blank with buffer and substrate but without the enzyme.

Solubility Information

Solubility	DMSO: 50 mg/mL (120.61 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.4122 mL	12.061 mL	24.122 mL
5 mM	0.4824 mL	2.4122 mL	4.8244 mL
10 mM	0.2412 mL	1.2061 mL	2.4122 mL
50 mM	0.0482 mL	0.2412 mL	0.4824 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Weiser T, et al. Mol Pharmacol, 2002, 62(3), 433-438.
Gibbs BF, et al. Inflamm Res, 1999, 48(2), 86-93.