Bromhexine hydrochloride

Cat. No.: HY-B0372A

CAS No.: 611-75-6

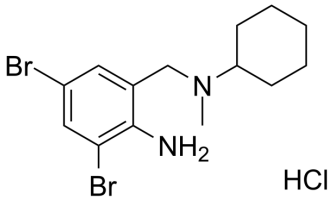
Molecular Formula: $C_{14}H_{21}Br_2ClN_2$

Molecular Weight: 412.59

Target: Autophagy; SARS-CoV; HIV

Pathway: Autophagy; Anti-infection

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 20 mg/mL (48.47 mM; Need ultrasonic)
H_2O : 3.33 mg/mL (8.07 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.4237 mL	12.1186 mL	24.2371 mL
5 mM	0.4847 mL	2.4237 mL	4.8474 mL
10 mM	0.2424 mL	1.2119 mL	2.4237 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 2.22 mg/mL (5.38 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2 mg/mL (4.85 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2 mg/mL (4.85 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Bromhexine hydrochloride is a potent and specific TMPRSS2 protease inhibitor with an IC_{50} of 0.75 μM. Bromhexine hydrochloride can prevent and manage SARS-CoV-2 infection. Bromhexine hydrochloride is an autophagy agonist. Bromhexine hydrochloride is a mucolytic cough suppressant and has the potential for a range of respiratory conditions[1][2][3][4].

IC_{50} & Target

HIV-1

In Vitro

Bromhexine hydrochloride (BHH; 250μM; 24 hours) also significantly attenuates HGF-induced invasion of LNCaP and C4-2B

	cells that natively express TMPRSS2[1]. No significant toxicity is observed over a 48-hour period exposing LNCaP, DU145, PC3, or HepG2 cells to Bromhexine hydrochloride concentrations ranging from 0μM to 250μM. Bromhexine hydrochloride exposure does not induce cell death or substantially suppress the growth of DU145 cells[1]. Bromhexine hydrochloride (20 μM; 48 h) inhibits dendritic cells infection with HIV-1[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Bromhexine hydrochloride (30mg/kg; ip; three times per week for 5 weeks) significantly reduces the incidence of distant metastasis to lung and liver sites from 55% in vehicle-treated animals to 20% in Wild-type C57BL/6 and TRAMP mice with PIN (prostatic intraepithelial neoplasia). The prostate glands of the mice treated with Bromhexine hydrochloride are generally substantially larger than vehicle-treated TRAMP mice[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Int Immunopharmacol. 2021 Apr 19;96:107658.
- FEBS Lett. 2020 Jan;594(1):153-160.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Jared M Lucas, et al. The androgen-regulated protease TMPRSS2 activates a proteolytic cascade involving components of the tumor microenvironment and promotes prostate cancer metastasis. Cancer Discov. 2014 Nov;4(11):1310-25.

[2]. Li Wen Shen, et al. TMPRSS2: A potential target for treatment of influenza virus and coronavirus infections. Biochimie. 2017 Nov;142:1-10.

[3]. Roberto Maggio, et al. Repurposing the mucolytic cough suppressant and TMPRSS2 protease inhibitor bromhexine for the prevention and management of SARS-CoV-2 infection. Pharmacol Res. 2020 Jul;157:104837.

[4]. Santosh Chauhan, et al. Pharmaceutical screen identifies novel target processes for activation of autophagy with a broad translational potential. Nat Commun. 2015 Oct 27;6:8620.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA