Thonzonium bromide

Cat. No.: HY-B1246

CAS No.: 553-08-2

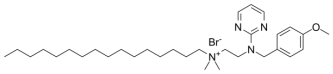
Molecular Formula: $C_{32}H_{55}BrN_4O$

Molecular Weight: 591.71

Target: Bacterial; Proton Pump

Pathway: Anti-infection; Membrane Transporter/Ion Channel

Storage: 4°C, stored under nitrogen
* In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (169.00 mM; Need ultrasonic)
DMSO : ≥ 30 mg/mL (50.70 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.6900 mL	8.4501 mL	16.9002 mL
	5 mM	0.3380 mL	1.6900 mL	3.3800 mL
	10 mM	0.1690 mL	0.8450 mL	1.6900 mL

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

BIOLOGICAL ACTIVITY

Description

Thonzonium bromide is an antibacterial agent that is structurally similar to Farnesol (HY-Y0248A). Thonzonium bromide is also a monocationic surface-active agent, which inhibits RANKL-induced osteoclast formation and bone resorption in vitro and prevents LPS-induced bone loss in vivo. Thonzonium bromide inhibits proton transport in a dose-dependent manner (EC_{50}=69 μM)[1][2][3].

In Vitro

Thonzonium bromide inhibits RANKL-induced OC formation, the appearance of OC-specific marker genes and bone-resorbing activity in vitro. Thonzonium bromide blocks the RANKL-induced activation of NF-κB, ERK and c-Fos as well as the induction of NFATc1 which is essential for OC formation. Thonzonium bromide disrupts F-actin ring formation resulting in disturbances in cytoskeletal structure in mature OCs during bone resorption. Thonzonium bromide exhibits protective effects in an in vivo murine model of LPS-induced calvarial osteolysis[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cancers (Basel). 2022 May 20;14(10):2527.
- ACS Chem Neurosci. 2018 Feb 21;9(2):346-357.
- Viruses. 2021 Jun 3;13(6):1061.
- Vet Parasitol. 2019 Jan;265:15-18.
- Preprints. 2021, 2021040399.

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REFERENCES

[1]. Zhu X, et al. Thonzonium bromide inhibits RANKL-induced osteoclast formation and bone resorption in vitro and prevents LPS-induced bone loss in vivo. Biochem Pharmacol. 2016;104:118-130.

[2]. Chan CY, et al. Inhibitors of V-ATPase proton transport reveal uncoupling functions of tether linking cytosolic and membrane domains of V0 subunit a (Vph1p). J Biol Chem. 2012;287(13):10236-10250.

[3]. Sims KR, et al. Enhanced design and formulation of nanoparticles for anti-biofilm drug delivery. Nanoscale. 2018;11(1):219-236.

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