

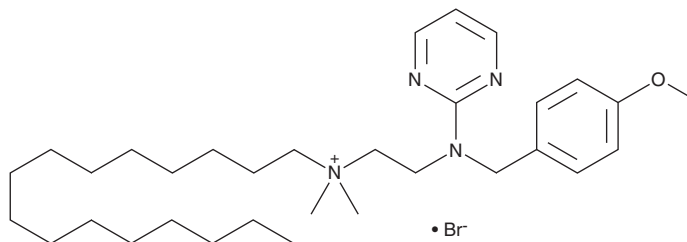
PRODUCT INFORMATION



Thonzonium (bromide)

Item No. 31253

CAS Registry No.: 553-08-2
Formal Name: N-[2-[[[4-methoxyphenyl)methyl]-2-pyrimidinylamino]ethyl]-N,N-dimethyl-1-hexadecanaminium, monobromide
Synonym: NC 1264
MF: $C_{32}H_{55}N_4O \cdot Br$
FW: 591.7
Purity: $\geq 98\%$
UV/Vis.: λ_{max} : 242 nm
Supplied as: A crystalline solid
Storage: $-20^{\circ}C$
Stability: ≥ 4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

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

Description

Thonzonium is a quaternary ammonium-containing cationic surfactant with diverse biological activities.¹⁻⁴ It is an inhibitor of *F. tularensis* acid phosphatase B (AcpB; $K_i = 0.59 \mu M$) and the vacuolar ATPase (V-ATPase) proton pump in *C. albicans* ($EC_{50} = 69 \mu M$ in purified vacuolar membrane vesicles).^{1,2} Thonzonium (25-400 nM) inhibits osteoclastogenesis induced by RANKL in bone marrow-derived macrophages (BMDMs) and inhibits bone resorption by mature osteoclasts in a V-ATPase-independent manner when used at concentrations of 100 and 200 nM.³ It prevents bone loss induced by LPS in a calvarial osteolytic mouse model when administered at a dose of 5 mg/kg per day. Thonzonium induces mortality in the helminths *C. oncophora*, *O. ostertagi*, *H. contortus*, and *T. circumcincta* with EC_{50} values of 4.5, 10.8, 5.1, and 6.7 μM , respectively, but is cytotoxic to HEK293 and RAW 264.7 cells with CC_{50} values of 9.2 and 5.7 μM , respectively.⁴ Formulations containing thonzonium as a surfactant have been used in the treatment of external auditory canal infections, as well as mastoidectomy and fenestration cavity infections.

References

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- Chan, C.-Y., Prudom, C., Raines, S.M., et al. Inhibitors of V-ATPase proton transport reveal uncoupling functions of tether linking cytosolic and membrane domains of V_0 subunit a (Vph1p). *J. Biol. Chem.* **287**(13), 10236-10250 (2012).
- Zhu, X., Gao, J.J., Landao-Bassonga, E., et al. Thonzonium bromide inhibits RANKL-induced osteoclast formation and bone resorption *in vitro* and prevents LPS-induced bone loss *in vivo*. *Biochem. Pharmacol.* **104**, 118-130 (2016).
- Liu, M., Landuyt, B., Klaassen, H., et al. Screening of a drug repurposing library with a nematode motility assay identifies promising anthelmintic hits against *Cooperia oncophora* and other ruminant parasites. *Vet. Parasitol.* **265**, 15-18 (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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