Calmidazolium chloride

Cat. No.: HY-103319

CAS No.: 57265-65-3

Molecular Formula: $C_{31}H_{23}Cl_7N_2O$

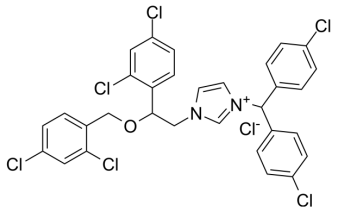
Molecular Weight: 687.7

Target: Autophagy; Calmodulin

Pathway: Autophagy; Membrane Transporter/Ion Channel

Storage: -20°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 : 100 mg/mL (145.41 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.4541 mL	7.2706 mL	14.5412 mL
5 mM	0.2908 mL	1.4541 mL	2.9082 mL
10 mM	0.1454 mL	0.7271 mL	1.4541 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (3.02 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (3.02 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Calmidazolium chloride (R 24571) is a calmodulin antagonist, antagonizing CaM-dependent phosphodiesterase and calmodulin-induced activation of erythrocyte Ca2+-transporting ATPase with IC_{50}s of 0.15 and 0.35 μM, respectively[1]. Also in anti-cancer research[2]. Calmidazolium binds to calmodulin with a K_d of 3 nM.

IC_{50} & Target

Kd: 3 nM (Calmodulin)[3]

In Vitro

Calmidazolium chloride is widely used as a calmodulin (CaM) antagonist, but is also known to induce apoptosis in certain cancer cell lines. Calmidazolium chloride (3, 5, 7, 10 μM, 30 minutes-24 hours) inhibits growth of mouse F9 ECCs[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	Mouse F9 ECCs
Concentration:	3, 5, 7, 10 μM
Incubation Time:	30 minutes-24 hours
Result:	The IC_{50}s of Calmidazolium chloride treated F9 ECCs and E14 ESCs are 8.18 μM, and 12.69 μM[2].

REFERENCES

[1]. Gietzen K, et al. Comparison of the calmodulin antagonists compound 48/80 and calmidazolium. Biochem J. 1983 Dec 15;216(3):611-6.

[2]. Lee J, et al. Calmidazolium chloride inhibits growth of murine embryonal carcinoma cells, a model of cancer stem-like cells. Toxicol In Vitro. 2016 Sep;35:86-92.

[3]. Budu A, et al. Calmidazolium evokes high calcium fluctuations in Plasmodium falciparum. Cell Signal. 2016 Mar;28(3):125-135.

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