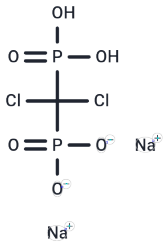
Data Sheet (Cat.No.T6451)

TargetMol

Clodronic acid disodium salt

Chemical Properties



CAS No. : 22560-50-5

Formula: CH4Cl2O6P0·2Na

Molecular Weight: 288.86

Storage: Keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Clodronic acid disodium salt (Lodronate), a bisphosphonate, is a potent antiosteolytic agent which inhibits bone resorption.
Targets(IC50)	Apoptosis,Others
In vitro	Clodronate significantly decreases total viability of cultures of J774 cells with EC50 of 300 μM, while liposome-encapsulated Clodronate decreases total viability of cultures of J774 cells with EC50 of 1 μM. Clodronate and liposome-encapsulated Clodronate is metabolized to a nonhydrolyzable adenosine triphosphate (ATP) analog, adenosine 5'-(beta, gamma-dichloromethylene) triphosphate, which can be detected in J774 cell extracts by using fast protein liquid chromatography. [1] Clodronate induces apoptosis in isolated osteoclasts. Clodronate, when administered in liposomes, also induces apoptosis in rat peritoneal macrophages in vitro and in liver macrophages of mice in vivo but not in murine macrophage-like RAW-264 cells. [2] Clodronate delivered into macrophages by liposome will kill these cells as a result of intracellular accumulation and irreversible metabolic damage. [3] Clodronate encapsulated in liposomes (clodrolip) efficiently depletes the phagocytic cells in the murine F9 teratocarcinoma and human A673 rhabdomyosarcoma mouse tumour models resulting in significant inhibition of tumour growth ranging from 75 to >92%, depending on therapy and schedule. [4] Clodronate, a bisphosphonate that lacks a nitrogen, does not inhibit protein isoprenylation but can be metabolized intracellularly to a beta-gamma-methylene (AppCp-type) analog of ATP, which is cytotoxic to macrophages in vitro. Clodronate is metabolited to AppCCl(2)p, and AppCCl(2)p inhibits mitochondrial oxygen consumption by a mechanism that involves competitive inhibition of the ADP/ATP translocase. [5]

Solubility Information

Solubility	H2O: 58.82 mg/mL (203.63 mM),Sonication is recommended. DMSO: Insoluble, (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.4619 mL	17.3094 mL	34.6188 mL
5 mM	0.6924 mL	3.4619 mL	6.9238 mL
10 mM	0.3462 mL	1.7309 mL	3.4619 mL
50 mM	0.0692 mL	0.3462 mL	0.6924 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Frith JC, et al. J Bone Miner Res, 1997, 12(9), 1358-1367.
Selander KS, et al. Mol Pharmacol, 1996, 50(5), 1127-1138.
van Rooijen N, et al. J Immunol Methods, 1996, 193(1), 93-99.
Zeisberger SM, et al. Br J Cancer, 2006, 95(3), 272-281.
Lehenkari PP, et al. Mol Pharmacol, 2002, 61(5), 1255-1262.