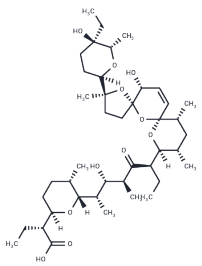
Data Sheet (Cat.No.T0906)

TargetMol

Salinomycin

Chemical Properties



CAS No. : 53003-10-4

Formula: C42H70O11

Molecular Weight: 751

Storage: Keep away from moisture
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	Salinomycin (Procoxacin), a polyether potassium ionophore antibiotic, specifically inhibits the growth of gram-positive bacteria, acts as a potent inhibitor of Wnt/β-catenin signaling by blocking Wnt-induced LRP6 phosphorylation, and demonstrates selective activity against human cancer stem cells.
Targets(IC50)	Apoptosis,Mitophagy,Antibacterial,Antibiotic,Parasite,Autophagy,Wnt/beta-catenin
In vitro	Salinomycin, a potent Wnt signaling cascade inhibitor and antibiotic potassium ionophore, demonstrates significant anticancer properties. It induces apoptosis in malignant lymphocytes within 48 hours, showing a mean IC50 value of 230 nM. Notably, Salinomycin has been identified as a selective inhibitor of breast cancer stem cells (CSCs)[1], effectively inhibiting both normal and Cisp-resistant SW620 cancer cells with IC50 values of 1.54±0.23 μM and 0.32±0.05 μM, respectively. It uniquely targets and kills CSCs and therapy-resistant cancer cells. Continuous treatment with Salinomycin over 48 hours increases the apoptotic cell count significantly in Cisp-resistant SW620 cells compared to non-resistant SW620 cells, as observed under a microscope and confirmed through flow cytometric analysis of cell apoptosis. The apoptotic rate is markedly higher in Cisp-resistant SW620 cells (37.82±3.63%) than in standard SW620 cells (16.78±2.56%) ($p<0.05$)[2].
In vivo	Upon administering doses of 4 mg/kg and 8 mg/kg Salinomycin (Sal), alongside 10 uL/g saline water to mice for a duration of 6 weeks, followed by their sacrifice, a significant reduction in liver tumor size is observed in the Sal-treated groups compared to the controls. Tumor diameters decrease notably from 12.17 mm to 3.67 mm ($p<0.05$), and volumes, calculated as V=length×width^2×0.5, diminish from 819 mm^3 to 25.25 mm^3 ($p<0.05$). Subsequent analyses, involving HE staining, immunohistochemistry, and TUNEL assays, are conducted to evaluate Salinomycin's anti-tumor efficacy. Results show altered liver cancer tissue structure, reduced PCNA expression, and higher apoptosis rates in Sal-treated mice, indicating significant anti-tumor activity. Furthermore, an increase in the Bax/Bcl-2 ratio and a decrease in β-catenin protein expression corroborate Salinomycin's effectiveness. Salinomycin, a monocarboxylic acid polyether antibiotic derived from Streptomyces albus fermentation, exhibits a unique cyclic structure enabling it to bind with pathogenic microorganisms and extracellular cations of coccidia, particularly K+, Na+, Rb+, effectively altering intra- and extracellular ion concentrations[4][5].

Solubility Information

Solubility	DMSO: < 1 mg/mL (insoluble) (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: < 10 mg/mL (13.32 mM),Lower concentrations may be soluble, but exact solubility limit is unknown. 10% DMSO+90% (20% SBE-β-CD in Saline): < 10 mg/mL (13.32 mM),Lower concentrations may be soluble, but exact solubility limit is unknown. 10% DMSO+90% Corn oil: 10 mg/mL (13.32 mM),Solution. 10% DMSO+40% PEG300+5% Tween 80+45% Saline: < 10 mg/mL (13.32 mM),Lower concentrations may be soluble, but exact solubility limit is unknown. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.3316 mL	6.6578 mL	13.3156 mL
5 mM	0.2663 mL	1.3316 mL	2.6631 mL
10 mM	0.1332 mL	0.6658 mL	1.3316 mL
50 mM	0.0266 mL	0.1332 mL	0.2663 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

Lu D, et al. Salinomycin inhibits Wnt signaling and selectively induces apoptosis in chronic lymphocytic leukemia cells. Proc Natl Acad Sci U S A. 2011 Aug 9;108(32):13253-7.
Zhou J, et al. Salinomycin induces apoptosis in cisplatin-resistant colorectal cancer cells by accumulation of reactiveoxygen species. Toxicol Lett. 2013 Oct 24;222(2):139-45.
Klose J, et al. Salinomycin: Anti-tumor activity in a pre-clinical colorectal cancer model. PLoS One. 2019 Feb 14;14(2):e0211916.
Wang F, et al. Salinomycin Inhibits Proliferation and Induces Apoptosis of Human Hepatocellular Carcinoma Cells In Vitro and In Vivo. PLoS One. 2012; 7(12): e50638.
Qu H, et al. Effect of salinomycin on metastasis and invasion of bladder cancer cell line T24. Asian Pac J Trop Med. 2015 Jul;8(7):578-82.
Naujokat C, et al. Salinomycin as a drug for targeting human cancer stem cells. J Biomed Biotechnol. 2012;2012:950658.