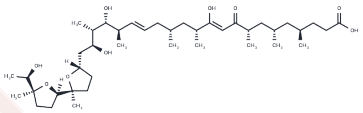
Data Sheet (Cat.No.T7285)

TargetMol

Ionomycin

Chemical Properties



CAS No. : 56092-81-0

Formula: C41H72O9

Molecular Weight: 709.01

Storage: Store at low temperature,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	Ionomycin is a calcium ion carrier and an antibiotic that binds to calcium ions (Ca2+). The main function of Ionomycin is to induce cellular responses by increasing the intracellular calcium ion concentration. In experiments, Ionomycin is typically used to activate calcium-dependent processes, such as apoptosis and enzyme activity.
Targets(IC50)	Apoptosis,Calcium Channel,Antibacterial,Antibiotic,PKC
In vitro	**METHODS**: LCLC 103H cells were treated with Ionomycin and analyzed using DNA and protein. **RESULTS**: Ionomycin induces DNA fragmentation and PARP lysis into an 85-kDa fragment of typical caspase-mediated apoptosis. [1]
In vivo	**METHODS**: To investigate the activation of immune cells by Ionomycin, PMA and Ionomycin were used to activate CD4+CD25- T cells in mice to generate inductive regulatory T cells (iTreg), and their functions were tested in a mouse model of inflammatory bowel disease (IBD). **RESULTS**: iTreg cells activated by Ionomycin could significantly alleviate the symptoms of IBD mouse models, including weight loss and reduced disease activity scores. [2] **METHODS**: To study the role of calcium signaling in embryonic development, Ionomycin was added to the mouse embryo culture medium. **RESULTS**: Calcium signaling plays a key role in embryonic cell migration and morphogenesis. [3]

Solubility Information

Solubility	Ethanol: 90 mg/mL (126.94 mM),Sonication is recommended. DMSO: 90 mg/mL (126.94 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 3.3 mg/mL (4.65 mM),Sonication is recommended. *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	1.4104 mL	7.0521 mL	14.1042 mL
5 mM	0.2821 mL	1.4104 mL	2.8208 mL
10 mM	0.141 mL	0.7052 mL	1.4104 mL
50 mM	0.0282 mL	0.141 mL	0.2821 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

Chatila T, et al. Mechanisms of T cell activation by the calcium ionophore ionomycin. J Immunol. 1989 Aug 15;143 (4):1283-9.
Zhang Y, Shi Q, Wang P, et al.iPSC-derived NK cells with site-specific integration of CAR19 and IL24 at the multi-copy rDNA locus enhanced antitumor activity and proliferation.MedComm.2024, 5(5): e553.
Majowicz A, et al. Murine $CD4^{+}CD25^{-}$ cells activated in vitro with PMA/ionomycin and anti-CD3 acquire regulatory function and ameliorate experimental colitis in vivo. BMC Gastroenterol. 2012 Dec 3;12:172.
Zhao X, Zhao Z, Li B, et al.ACSL4-mediated lipid rafts prevent membrane rupture and inhibit immunogenic cell death in melanoma.Cell Death & Disease.2024, 15(9): 695.
Hayashi K,et al. Intracellular calcium signal at the leading edge regulates mesodermal sheet migration during Xenopus gastrulation. Sci Rep. 2018 Feb 5;8(1):2433.