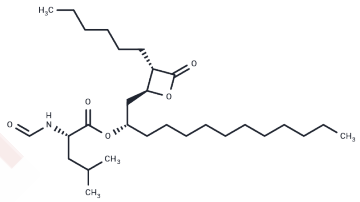
Data Sheet (Cat.No.T0686)

TargetMol

Orlistat

Chemical Properties



CAS No. : 96829-58-2

Formula: C29H53NO5

Molecular Weight: 495.73

Storage: Store at low temperature
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	Orlistat (Tetrahydrolipstatin) is a lipase inhibitor and a fatty acid synthase (FASN) inhibitor. Orlistat has been shown to promote weight loss.
Targets(IC50)	Apoptosis,Fatty Acid Synthase
In vitro	**METHODS**: Prostate cancer cells PC3, DU145 and LNCaP were treated with Orlistat (10-300 μM) for 24 h and cell proliferation was detected by MTT assay. **RESULTS**: Increasing concentrations of Orlistat resulted in a dose-dependent decrease in cell viability of the three PCa cell lines tested. [1] **METHODS**: Breast cancer cells SK-Br3 were treated with Orlistat (40 μM) for 6-72 h. Cell cycle was measured by Flow cytometry. **RESULTS**: The time-dependent response of SK-Br3 breast cancer cells to Orlistat was characterized by the absence of G2-M populations and the accumulation of cells in the S phase of the cell cycle. Importantly, Orlistat exposure significantly promoted apoptosis, as evidenced by the time-dependent accumulation of sub-G1 populations with <2N DNA and representing dead cells. [2]
In vivo	**METHODS**: To detect anti-tumor activity in vivo, Orlistat (240 mg/kg, 33% ethanol and 66% PEG 400) was injected intraperitoneally into athymic nude mice bearing PC-3 xenografts once daily for three weeks. **RESULTS**: Orlistat prevented PC-3 tumor growth. In five separate experiments, tumor growth was blocked by 63%, 62%, 46%, 41%, and 16%. [3]

Solubility Information

Solubility	DMSO: 260 mg/mL (524.48 mM),Sonication is recommended. Ethanol: 49.6 mg/mL (100.05 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	33% Ethanol + 67% PEG 400/PEG 300: 10 mg/mL (20.17 mM),Solution. *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	2.0172 mL	10.0861 mL	20.1723 mL
5 mM	0.4034 mL	2.0172 mL	4.0345 mL
10 mM	0.2017 mL	1.0086 mL	2.0172 mL
50 mM	0.0403 mL	0.2017 mL	0.4034 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

Wright C, et al. Anti-Tumorigenic Potential of a Novel Orlistat-AICAR Combination in Prostate Cancer Cells. J Cell Biochem. 2017 Nov;118(11):3834-3845.

Zhang X, Li P, Tang Y, et al.The proteomic landscape of fall armyworm oral secretion reveals its role in plant adaptation.Pest Management Science.2024

Wang Y M, Ge M X, Ran S Z, et al.Antioxidant Peptides from Miiuy Croaker Swim Bladders: Ameliorating Effect and Mechanism in NAFLD Cell Model through Regulation of Hypolipidemic and Antioxidant Capacity.Marine Drugs. 2025, 23(2): 63.

Menendez JA, et al. Antitumoral actions of the anti-obesity drug orlistat (XenicalTM) in breast cancer cells: blockade of cell cycle progression, promotion of apoptotic cell death and PEA3-mediated transcriptional repression of Her2/neu (erbB-2) oncogene. Ann Oncol. 2005 Aug;16(8):1253-67.

Kridel SJ, et al. Orlistat is a novel inhibitor of fatty acid synthase with antitumor activity. Cancer Res. 2004 Mar 15;64 (6):2070-5.

Deficiency of SDHC promotes metastasis by reprogramming fatty acid metabolism in colorectal cancer