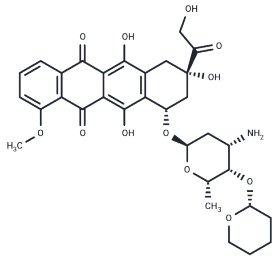
Data Sheet (Cat.No.T6628)

TargetMol

Pirarubicin

Chemical Properties



CAS No. : 72496-41-4

Formula: C32H37NO12

Molecular Weight: 627.64

Storage: Powder: -20°C for 3 years
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Pirarubicin (Theprubicin) is an anthracycline antibiotic. It is also a DNA/RNA synthesis inhibitor that intercalates into DNA and interacts with topoisomerase II, utilized as an antineoplastic agent.
Targets(IC50)	Antibacterial,Antibiotic,Autophagy,Topoisomerase
In vitro	Pirarubicin is rapidly taken up by M5076 cells and the intracellular concentration of pirarubicin reaches more than 2.5-fold that of doxorubicin. Pirarubicin is more effective than doxorubicin in terms of the 50% cell growth-inhibitory concentration in vitro. [1] Pirarubicin causes G0/G1 cell cycle arrest in MG-63 cells. Pirarubicin suppresses the expression of PCNA, cyclin D1, cyclin E and Bcl-2, and increases Bax expression in MG-63 cells. [2] Pirarubicin markedly relaxes contractions induced by noradrenaline (0.1 μM) in the aorta with endothelium, but not in that without endothelium. Pirarubicin-induced relaxation is inhibited by methylene blue (5 μM), hydroquinone (100 μM), phenidone (50 μM), haemoglobin (1 μM) and p-bromophenacyl bromide (50 μM), but not by indomethacin (25 μM). [3] Pirarubicin is approximately 2-5 times more potent than Adriamycin in SKUT1B, HEC1A, and BG1 cell lines. Pirarubicin also displays a reverse dose-response pattern of G2 block so that at high dose, cell cycle kinetics would mirror those of untreated controls. [4]
In vivo	Pirarubicin reduces the tumor weight to 60% of the control level in M5076 solid tumor-bearing mice, although doxorubicin has no effect. [1] Pirarubicin and Epirubicin are effective against V x 2 tumor when injected via the hepatic intra-arterial (h.i.a.) route, the activity of Pirarubicin is stronger than that of Epirubicin. [5]

Solubility Information

Solubility	Ethanol: < 1 mg/mL (insoluble or slightly soluble), H2O: < 1 mg/mL (insoluble or slightly soluble), DMSO: 6.32 mg/mL (10.07 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.5933 mL	7.9664 mL	15.9327 mL
5 mM	0.3187 mL	1.5933 mL	3.1865 mL
10 mM	0.1593 mL	0.7966 mL	1.5933 mL
50 mM	0.0319 mL	0.1593 mL	0.3187 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

Sugiyama T, et al. Jpn J Cancer Res, 1999, 90(7), 775-780.
Cheng M Z, Yang B B, Zhan Z T, et al.MACC1 and Gasdermin-E (GSDME) regulate the resistance of colorectal cancer cells to irinotecan.Biochemical and Biophysical Research Communications.2023
Liu SY, et al. Chemotherapy, 2010, 56(2), 101-107.
Hirano S, et al. J Pharm Pharmacol, 1991, 43(12), 848-854.
Nguyen HN, et al. Gynecol Oncol, 1992, 45(2), 164-173.
Okada M, et al. Br J Cancer, 1995, 71(3), 518-524.
Li K, et al. Pirarubicin induces an autophagic cytoprotective response through suppression of the mammalian target of rapamycin signaling pathway in human bladder cancer cells. Biochem Biophys Res Commun. 2015 May 1;460(2):380-5.
Wang YD, et al. Cardioprotective effects of rutin in rats exposed to pirarubicin toxicity. J Asian Nat Prod Res. 2017 Oct 27:1-13.