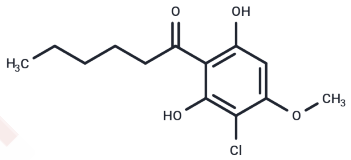
Data Sheet (Cat.No.T60485)

TargetMol

DIF-3

Chemical Properties



CAS No. : 113411-17-9

Formula: C13H17ClO4

Molecular Weight: 272.72

Storage: 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	DIF-3 is a chemical compound that acts by activating GSK-3β to facilitate the degradation of cyclin D1 and c-Myc, resulting in reduced expression levels of these proteins. In addition, DIF-3 inhibits Wnt/β-catenin signaling pathway-related proteins in DLD-1 cells. This compound exerts a potent antiproliferative effect on the HeLa human cervical cancer cell line by inducing cyclin D1 degradation and inhibiting cyclin D1 mRNA expression [1].
Targets(IC50)	CDK,GSK-3,Wnt/beta-catenin
In vitro	In this study, we examined the effects of six DIF analogues (DIF-1, DIF-2 (which has pentanone in place of hexanone), DIF-3 (dechlorinated form of DIF-1), 2-MIDIF-1 (2-methoxy isomer of DIF-1), DMPH (dechlorinated form of DIF-3), and THPH (4-hydroxy substitution of DMPH)) on DNA synthesis, cell growth, erythroid differentiation, and cytosolic free calcium concentration ([Ca2+]i) in human leukemia K562 cells. DIF-3 proved to be the most potent anti-leukemic agent among them, and the order of potency for causing growth inhibition, erythroid induction, and increases in [Ca2+]iTHPH in all the categories tested. [1] DIF-3 activates GSK-3beta to accelerate the proteolysis of cyclin D1 and that this mechanism is involved in the DIF-3-induced G(0)/G(1) arrest in mammalian cells.[2]

Solubility Information

Solubility	DMSO: 20.83 mg/mL (76.38 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Corn Oil: 3.3 mg/mL (12.1 mM),Sonication is recommended. 10% DMSO+90% Saline: < 2.08 mg/mL (7.63 mM),Lower concentrations may be soluble, but exact solubility limit is unknown. 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2.08 mg/mL (7.63 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	3.6668 mL	18.3338 mL	36.6676 mL
5 mM	0.7334 mL	3.6668 mL	7.3335 mL
10 mM	0.3667 mL	1.8334 mL	3.6668 mL
50 mM	0.0733 mL	0.3667 mL	0.7334 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

Kubohara Y. Effects of differentiation-inducing factors of Dictyostelium discoideum on human leukemia K562 cells: DIF-3 is the most potent anti-leukemic agent. Eur J Pharmacol. 1999;381(1):57-62.
Zheng C, Wang Y, Bi B, et al.Gallic acid ameliorates endometrial hyperplasia through the inhibition of the PI3K/AKT pathway and the down-regulation of cyclin D1 expression.Journal of Pharmacological Sciences.2024
Takahashi-Yanaga F, et al. Dictyostelium differentiation-inducing factor-3 activates glycogen synthase kinase-3beta and degrades cyclin D1 in mammalian cells. J Biol Chem. 2003;278(11):9663-9670.