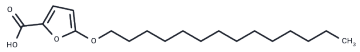
Data Sheet (Cat.No.T3988)

TargetMol
YOUR TARGET MOLECULES

TOFA

Chemical Properties



CAS No. : 54857-86-2

Formula: C19H32O4

Molecular Weight: 324.45

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	TOFA (MDL14514) is an allosteric inhibitor of acetyl-CoA carboxylase-α (ACCA).
Targets(IC50)	Acetyl-CoA Carboxylase
In vitro	TOFA (5-tetradecyloxy-2-furoic acid) effectively inhibits the proliferation of examined cancer cells by inducing apoptosis, arresting them in the G0/G1 cell cycle phase, and exhibiting time and dose-dependent cytotoxic effects. It specifically targets Acetyl-CoA-carboxylase-α (ACCA), a crucial enzyme in fatty acid synthesis regulation, leading to decreased fatty acid synthesis, caspase activation, and cell death, particularly in prostate cancer (PCa) cell lines. Additionally, TOFA demonstrates significant cytotoxicity toward lung cancer cells NCI-H460 and colon carcinoma cells HCT-8 and HCT-15, showcasing IC50 values around 5.0, 5.0, and 4.5 μg/mL respectively. At concentrations ranging from 1.0 to 20.0 μg/mL, it blocks fatty acid synthesis and prompts cell death in a dose-dependent manner. Furthermore, TOFA has proven cytotoxic effects on COC1 and COC1/DDP cells, with IC50 values approximately at 26.1 and 11.6 μg/mL, respectively.
In vivo	The tumor growth rate is signifi?cantly inhibited by TOFA compared with the DMSO treated control mice (1649±356.3 vs. 5128±390.4 mm3. No toxicity is observed in the heart, liver, spleen, lung, kidney and intestinal tissues. TOFA inhibits COC1/DDP cell growth in ovarian tumor mouse xenografts. By inhibiting ACC, TOFA may be a promising small molecule agent for ovarian cancer therapy.
Cell Research	NCI-H460, human lung cancer cells, and HCT-8 and HCT-15 cells (5,000/well) are seeded in 96-well plates overnight and then exposed to TOFA at indicated concentrations (0, 1, 5, 10, 20, 50 μg/mL) for 72 hours. Viable cells are detected using MTT assay[1].

Solubility Information

Solubility	DMSO: 6.88 mg/mL (21.19 mM), (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.0821 mL	15.4107 mL	30.8214 mL
5 mM	0.6164 mL	3.0821 mL	6.1643 mL
10 mM	0.3082 mL	1.5411 mL	3.0821 mL
50 mM	0.0616 mL	0.3082 mL	0.6164 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.

Reference

Chen S, Ni J, Luo L, et al.Toosendanin induces hepatotoxicity via disrupting LXRα/Lipin1/SREBP1 mediated lipid metabolism.Food and Chemical Toxicology.2024: 114631.