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产品名称: **5-(TETRADECYLOXY)-2-FUROIC ACID**
产品别名: **TOFA; RMI14514; MDL14514**

生物活性:				
Description	TOFA (RMI14514;MDL14514) is an allosteric inhibitor of acetyl-CoA carboxylase- α (ACCA).			
In Vitro	TOFA (5-tetradecyloxy-2-furoic acid) is cytotoxic to lung cancer cells NCI-H460 and colon carcinoma cells HCT-8 and HCT-15, with an IC50 at approximately 5.0, 5.0, and 4.5 $\mu\text{g/mL}$, respectively. TOFA at 1.0–20.0 $\mu\text{g/mL}$ effectively blocks fatty acid synthesis and induces cell death in a dose-dependent manner[1]. TOFA is found to be cytotoxic to COC1 and COC1/DDP cells with IC50 values of ~26.1 and 11.6 $\mu\text{g/mL}$, respectively. TOFA inhibits the proliferation of the cancer cells examined in a time and dose dependent manner, arrests the cells in the G0/G1 cell cycle phase and induces apoptosis[2]. Acetyl-CoA-carboxylase- α (ACCA) is a key enzyme in the regulation of fatty acids synthesis. Inhibition of ACCA by TOFA decreases fatty acid synthesis and induces caspase activation and cell death in most PCA cell lines[3].			
In Vivo	TOFA inhibits COC1/DDP cell growth in ovarian tumor mouse xenografts. The tumor growth rate is significantly inhibited by TOFA compared with the DMSO treated control mice (1649 \pm 356.3 vs. 5128 \pm 390.4 mm ³ . No toxicity is observed in the heart, liver, spleen, lung, kidney and intestinal tissues. By inhibiting ACC, TOFA may be a promising small molecule agent for ovarian cancer therapy[2].			
Solvent&Solubility	In Vitro: DMSO : 11.36 mg/mL (35.01 mM; Need ultrasonic) H₂O : < 0.1 mg/mL (insoluble)			
		Solvent Mass Concentration	1 mg	5 mg
	Preparing	1 mM	3.0821 mL	15.4107 mL
	Stock Solutions	5 mM	0.6164 mL	3.0821 mL
		10 mM	0.3082 mL	1.5411 mL
*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液; 一旦配成溶液, 请分装保存, 避免反复冻融造成的产品失效。 储备液的保存方式和期限 -80°C, 6 months; -20°C, 1 month. -80°C 储存时, 请在 6 个月内使用, -20°C 储存时, 请在 1 个月内使用。				
Solvent&Solubility	In Vivo: 请根据您的实验动物和给药方式选择适当的溶解方案。以下溶解方案都请先按照 In Vitro 方式配制澄清的储备液, 再依次添加助溶剂: ——为保证实验结果的可靠性, 澄清的储备液可以根据储存条件, 适当保存; 体内实验的工作液, 建议您现用现配, 当天使用; 以下溶剂前显示的百分比是指该溶剂在您配制终溶液中的体积占比; 如在配制过程中出现沉淀、析出现象, 可以通过加热和/或超声的方式助溶 1.请依序添加每种溶剂: 10% DMSO →90% corn oil Solubility: $\geq 1.14 \text{ mg/mL}$ (3.51 mM); Clear solution 此方案可获得 $\geq 1.14 \text{ mg/mL}$ (3.51 mM, 饱和度未知) 的澄清溶液, 此方案不适用于实验周期在半个月以上的实验。 以 1 mL 工作液为例, 取 100 μL 11.4 mg/mL 的澄清 DMSO 储备液加到 900 μL 玉米油中, 混合均匀。			



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References	<p>[1]. Wang C, et al. Acetyl-CoA carboxylase-alpha inhibitor TOFA induces human cancer cell apoptosis. Biochem Biophys Res Commun. 2009 Jul 31;385(3):302-6.</p> <p>[2]. Li S, et al. TOFA suppresses ovarian cancer cell growth in vitro and in vivo. Mol Med Rep. 2013 Aug;8(2):373-8.</p> <p>[3]. Guseva NV, et al. TOFA (5-tetradecyl-oxy-2-furoic acid) reduces fatty acid synthesis, inhibits expression of AR, neuropilin-1 and Mcl-1 and kills prostate cancer cells independent of p53 status. Cancer Biol Ther. 2011 Jul 1;12(1):80-5.</p>
实验参考:	
Cell Assay	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].
Animal Administration	Mice: Mice are treated with 50 µL DMSO (control group) or treated with TOFA (50 mg/kg). The drugs are injected intraperitoneally daily for two weeks. Tumor volumes are recorded every two days by measuring dimensions (length and width) with Vernier calipers. The mice are sacrificed four weeks after the final treatment. Tumor weights are measured by a scale[2].
References	<p>[1]. Wang C, et al. Acetyl-CoA carboxylase-alpha inhibitor TOFA induces human cancer cell apoptosis. Biochem Biophys Res Commun. 2009 Jul 31;385(3):302-6.</p> <p>[2]. Li S, et al. TOFA suppresses ovarian cancer cell growth in vitro and in vivo. Mol Med Rep. 2013 Aug;8(2):373-8.</p> <p>[3]. Guseva NV, et al. TOFA (5-tetradecyl-oxy-2-furoic acid) reduces fatty acid synthesis, inhibits expression of AR, neuropilin-1 and Mcl-1 and kills prostate cancer cells independent of p53 status. Cancer Biol Ther. 2011 Jul 1;12(1):80-5.</p>

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