

Product Data Sheet

Product Name: C75
Cat. No.: GC34065

Chemical Properties

Cas. No. 218137-86-1

SMILES O=C(C(C1=C)C(CCCCCCCC)OC1=O)O

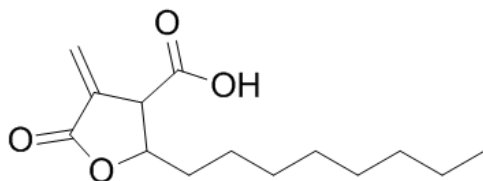
Formula $C_{14}H_{22}O_4$ M.Wt 254.32

Solubility DMSO : ≥ 83.3 mg/mL (327.54 mM) Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines

HepG 2、 SMMC 7721、 Hep 3B cells

Caution: Product has not been fully validated for medical applications. For research use only.

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Preparation method	Cells (5.0×10^6 /10 cm dish) were treated with C75 for the indicated time intervals. Control cells received equivalent amounts of DMSO alone. FAS activity of cytoplasmic fractions of cells was measured by fluorescence quantification after exposure to 15 µg/ml C75 for 15 or 30 min.
Reaction Conditions	15 µg/ml ; 15 or 30 min.
Applications	Treatment of cells with C75 (15 µg/ml initial dose) produced significant reductions in FAS activity in HepG2 and Hep3B cells within 15 min, and in SMMC7721 cells within 30 min.
Animal experiment [2]:	
Animal models	Twelve-week-old DIO C57BL6J male mice
Preparation method	DIO C57BL6J mice were fed a synthetic diet consisting of 60% calories from fat after weaning. Mice were maintained on a 12-h light-dark cycle at 25°C for 1 week before treatment. C75 and etomoxil were dissolved in RPMI medium 1640 and injected intraperitoneally at the indicated doses. Three mice were treated with C75 (20 mg/kg) on day 0. Subsequent doses were administered as follows: 15 mg/kg on day 2; 10 mg/kg on day 4; 15 mg/kg. On days 6 and 8, four mice received RPMI medium 1640.
Dosage form	10-20 mg/kg; i.p.

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Applications	In DIO mice, C75 treatment led to a 50% weight loss and a 32.9% increase in energy production due to fatty acid oxidation
References: [1] Gao Y , Lin L P .Growth arrest induced by C75, A fatty acid synthase inhibitor, was partially modulated by p38 MAPK but not by p53 in human hepatocellular carcinoma.[J].Cancer Biology & Therapy, 2006, 5(8):978-985. [2] Thupari JN, et al. C75 increases peripheral energy utilization and fatty acid oxidation in diet-induced obesity. Proc Natl Acad Sci U S A. 2002 Jul 9;99(14):9498-502.	

Background

C75 is a specific inhibitor of fatty acid synthase (FASN/FAS) with moderate inhibitory activity, showing an IC_{50} value of $15.53 \mu M$ ^[1]. It is used in research on obesity and cancer to explore the connection between fatty acid synthesis, energy metabolism, tumor growth, and survival. C75 is also an effective activator of CPT1A^[2].

In vitro, it inhibits PC3 cell growth with a 24-hour IC_{50} of $35 \mu M$ and reduces the growth of LNCaP spheroids in a concentration-dependent manner with an IC_{50} of $50 \mu M$ ^[3]. Additionally, C75-mediated CPT 1A activation inhibits EMT, as indicated by reduced migration and α -SMA expression in HK-2 cells^[4].

In vivo, C75 injection suppresses fasting-induced c-Fos expression in specific hypothalamic nuclei and reduces mouse feeding by $\geq 95\%$ within 2 hours at a dose of 30 mg/kg ^[5]. In DIO mice, C75 treatment led to a 50% weight loss and a 32.9% increase in energy production due to fatty acid oxidation^[2].

References:

[1] Wang X , Lin J , Chen Y ,et al.Novel fatty acid synthase (FAS) inhibitors: Design, synthesis, biological evaluation, and molecular docking studies[J].Bioorganic & Medicinal Chemistry, 2009,

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17(5):1898-1904.

[2] Thupari JN, et al. C75 increases peripheral energy utilization and fatty acid oxidation in diet-induced obesity. Proc Natl Acad Sci U S A. 2002 Jul 9;99(14):9498-502.

[3] Rae C, et al. Inhibition of Fatty Acid Synthase Sensitizes Prostate Cancer Cells to Radiotherapy. RADIATION RESEARCH 184, 482–493 (2015).

[4] L Peng, C Wang, S Yu, et al. Dysregulated lipid metabolism is associated with kidney allograft fibrosis. Lipids in Health and Disease, 2024(23).

[5] Gao S, et al. Effect of the anorectic fatty acid synthase inhibitor C75 on neuronal activity in the hypothalamus and brainstem. Proc Natl Acad Sci U S A. 2003 May 13;100(10):5628-33.

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