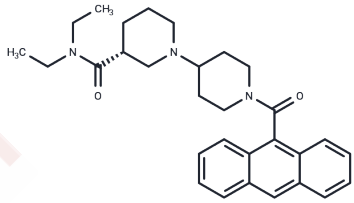
Data Sheet (Cat.No.T40675)

TargetMol

CP-610431

Chemical Properties



CAS No. : 591778-83-5

Formula: C30H37N3O2

Molecular Weight: 471.645

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	CP-610431 is a reversible, ATP-uncompetitive inhibitor of acetyl-CoA carboxylase (ACC) that exhibits isozyme nonselectivity, inhibiting both ACC1 and ACC2 with IC50 values of approximately 50 nM. CP-610431 offers potential application in metabolic syndrome research.
Targets(IC50)	Others,Acetyl-CoA Carboxylase
In vitro	CP-610431, the active R-enantiomer of CP-497485, demonstrates greater potency than its racemate, CP-497485, and significantly surpasses the S-enantiomer, CP-610432, in inhibiting rat ACC1 (IC 50=35.7 nM) and ACC2 (IC 50=55 nM), with the latter showing negligible inhibition up to 3 μM. It notably inhibits fatty acid and triglyceride synthesis, along with TG and apolipoprotein B secretion in HepG2 cells, achieving EC 50 values of 1.6, 1.8, 3.0, and 5.7 μM, respectively, without impacting cholesterol synthesis or apolipoprotein CIII secretion. Consistently, CP-610431 inhibits ACC activity in the liver and skeletal muscle of rats, mice, and cynomolgus macaques with comparable effectiveness. Furthermore, it efficiently inhibits fatty acid and TG synthesis in mouse primary hepatocytes, with IC 50 values of 0.11 and 1.2 μM respectively, and TG secretion with an IC 50 of 10 μM. A Cell Viability Assay on HepG2 cells, treated with concentrations of 0.1, 1, and 10 μM for 24 hours, revealed dose-dependent inhibition of fatty acid and TG synthesis, as well as TG and apoB secretion, confirming its impactful biochemical activities.
In vivo	CP-610431 effectively inhibits fatty acid synthesis in both CD1 and ob/ob mice within one hour of administration, demonstrating ED50 values of 22 and 4 mg/kg, respectively [1]. In CD1 mice, doses of 30 and 100 mg/kg reduced hepatic fatty acid synthesis by 64±12% and 77±4% in fasting conditions, while in non-fasting conditions, doses of 10, 30, and 100 mg/kg achieved inhibition rates of 18%, 51%, and 75%, respectively. These results were achieved through intraperitoneal administration, highlighting CP-610431's potent effect on fatty acid synthesis suppression across different physiological states.

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.1202 mL	10.6011 mL	21.2022 mL
5 mM	0.424 mL	2.1202 mL	4.2404 mL
10 mM	0.212 mL	1.0601 mL	2.1202 mL
50 mM	0.0424 mL	0.212 mL	0.424 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

H James Harwood Jr, et al. Isozyme-nonselective N-substituted bipiperidylcarboxamide acetyl-CoA carboxylase inhibitors reduce tissue malonyl-CoA concentrations, inhibit fatty acid synthesis, and increase fatty acid oxidation in cultured cells and in experimental animals. J Biol Chem. 2003 Sep 26;278(39):37099-111.