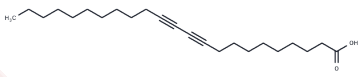
Data Sheet (Cat.No.T10035)

TargetMol

10,12-Tricosadiynoic acid

Chemical Properties



CAS No. : 66990-30-5

Formula: C23H38O2

Molecular Weight: 346.55

Appearance: no data available

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

Biological Description

Description	10,12-Tricosadiynoic acid is a highly selective and orally active inhibitor of acyl-CoA oxidase-1 (ACOX1), which can treat high-fat diet- or obesity-induced metabolic diseases by improving mitochondrial lipid and ROS metabolism.
Targets(IC50)	Acyltransferase
In vitro	10,12-Tricosadiynoic acid-CoA rapidly inhibits ACOX1 activity in a time- and concentration-dependent manner. The activity of ACOX1 decreases by nearly 95% after 5 min of incubation with 10 eq of 10,12-Tricosadiynoic acid-CoA. ACOX1 activity is inhibited only if free 10,12-Tricosadiynoic Acid is activated as the CoA thioester, the substrate form. The inhibition of ACOX1 by 10,12-Tricosadiynoic acid-CoA is irreversible. And the kinetics parameters KI and kinact are calculated to be 680 nm and 3.18/min, respectively.
In vivo	Administration of 10,12-Tricosadiynoic acid (100 μg/kg; oral gavage; daily; for 8 weeks; male Wistar rats) enhances hepatic mitochondrial fatty acid oxidation (FAO) by activating the SIRT1-AMPK pathway and proliferator activator receptor α, while reducing hydrogen peroxide accumulation in high-fat diet-fed rats, leading to significant decreases in hepatic lipid and ROS contents, body weight gain, and serum triglyceride and insulin levels.
Animal Research	Animal Model: Male Wistar rats (210-230 g) fed with high-fat diet. Dosage: 100 μg/kg. Administration: Oral gavage; daily; for 8 weeks

Solubility Information

Solubility	DMSO: 2.75 mg/mL (7.94 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.8856 mL	14.4279 mL	28.8559 mL
5 mM	0.5771 mL	2.8856 mL	5.7712 mL
10 mM	0.2886 mL	1.4428 mL	2.8856 mL
50 mM	0.0577 mL	0.2886 mL	0.5771 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

Zeng J, et al. Specific Inhibition of Acyl-CoA Oxidase-1 by an Acetylenic Acid Improves Hepatic Lipid and Reactive Oxygen Species (ROS) Metabolism in Rats Fed a High Fat Diet. J Biol Chem. 2017 Mar 3;292(9):3800-3809.