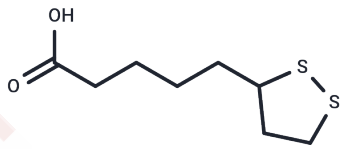
Data Sheet (Cat.No.T2930)

TargetMol

α-Lipoic Acid

Chemical Properties



CAS No. : 62-46-4

Formula: C8H14O2S2

Molecular Weight: 206.32

Appearance: no data available

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

Biological Description

Description	α-Lipoic Acid (Alphalipoic acid) inhibits NF-κB-dependent HIV-1 LTR activation. α-Lipoic Acid induces endoplasmic reticulum (ER) stress-mediated apoptosis in hepatoma cells. α-Lipoic Acid is an antioxidant, which is an essential cofactor of mitochondrial enzyme complexes.
Targets(IC50)	NF-κB,HIV Protease,Mitochondrial Metabolism,Endogenous Metabolite
In vitro	α-Lipoic Acid (Alpha-Lipoic acid, ALA) is a naturally occurring dithiol compound, plays an essential role in mitochondrial bioenergetics.?It reduces lipid accumulation in the liver by regulating the transcriptional factors SREBP-1, FoxO1, and Nrf2, and their downstream lipogenic targets via the activation of the SIRT1/LKB1/AMPK pathway.? Treatment of cells with α-Lipoic Acid (250, 500 and 1000 μM) significantly increases the NAD+/NADH ratio in HepG2 cells (P<0.05 or P<0.01).?Treatment with α-Lipoic Acid (50, 125, 250 and 500 μM) increases SIRT1 activity in HepG2 cells.?α-Lipoic Acid (50, 125, 250, 500 and 1000 μM) increases phosphorylation of AMPK and acetyl-CoA carboxylase (ACC) in HepG2 cells in a dose-dependent fashion
In vivo	Administration of α-Lipoic Acid (100 mg/kg or 200 mg/kg) markedly reduces visceral fat mass in mice.?In addition, α-Lipoic Acid (100 mg/kg or 200 mg/kg) treatment inhibits the appetite and causes a dramatic weight loss (all P<0.05)[1]
Animal Research	C57BL/6J mice, divided into four groups, are fed an high-fat diet (HFD) for 24 weeks to induce nonalcoholic fatty liver disease (NAFLD) followed by daily administration of α-Lipoic Acid.?Then, the effects of α-Lipoic Acid on hepatic lipid accumulation in long-term HFD-fed mice are assessed[1].

Solubility Information

Solubility	DMSO: 50 mg/mL (242.34 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.8468 mL	24.2342 mL	48.4684 mL
5 mM	0.9694 mL	4.8468 mL	9.6937 mL
10 mM	0.4847 mL	2.4234 mL	4.8468 mL
50 mM	0.0969 mL	0.4847 mL	0.9694 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

Xiao L, et al. Activity of the dietary antioxidant ergothioneine in a virus gene-based assay for inhibitors of HIV transcription. Biofactors. 2006;27(1-4):157-65.
Pibiri M, et al. α-Lipoic acid induces Endoplasmic Reticulum stress-mediated apoptosis in hepatoma cells. Sci Rep. 2020 Apr 28;10(1):7139.
Yang Y, et al. Alpha-lipoic acid improves high-fat diet-induced hepatic steatosis by modulating the transcription factors SREBP-1, FoxO1 and Nrf2 via the SIRT1/LKB1/AMPK pathway. J Nutr Biochem. 2014 Nov;25(11):1207-1217.