Product Data Sheet

Product Name: 3-Thiatetradecanoic Acid
Cat. No.: GC12289

Chemical Properties

Cas. No.	116296-31-2		
Chemical Name	(undecylthio)-acetic acid		
SMILES	CCCCCCCCCCCSCC(O)=O		
Formula	$C_{13}H_{26}O_2S$	M.Wt	246.4
Solubility	≤30mg/ml in ethanol;30mg/ml in DMSO;30mg/ml in dimethyl formamide	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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	3-Thiatetradecanoic Acid		

Background

3-Thiatetradecanoic Acid is an activator of PPAR.

The peroxisome proliferator-activated receptors (PPARs) are transcription factors involved in fatty acid metabolism and energy homeostasis. The PPARs also play crucial roles in the control of cellular growth and differentiation.

In vitro: In BT4Cn cells, 3-thiatetradecanoic acid could activate all PPAR subtypes dose-dependently. In cell culture experiments, the PPARγ-selective ligand BRL49653 moderately inhibited growth of BT4Cn cells, while administration of 3-thiatetradecanoic acid led to a marked growth inhibition. Moreover, the administration of the PPARγ-selective antagonist GW9662 abolished BRL49653-induced growth inhibition, but only marginally reduced the effect of 3-thiatetradecanoic acid [1].

In vivo: Administration of 3-thiatetradecanoic acid increased mitochondrial and

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

peroxisomal beta-oxidative capacity and carnitine palmitoyltransferase activity, but reduced free fatty acid and triacylglycerol levels in plasma compared to palmitic acid-treated rats and controls. 3-Thiatetradecanoic acid administration was able to affect the fatty acid composition in plasma and liver by increasing the amount of monoenes [2].

Clinical trial: A previous study described the clinical, hematological, and biochemical safety of 3-thiatetradecanoic acid. 3-Thiatetradecanoic acid was given as a single oral dose for 7 consecutive days. No significant changes were observed in the hematological or clinical chemical parameters in blood/urine. 3-Thiatetradecanoic acid did not induce significant changes in the blood lipids or free fatty acids, but it did lead to an increase in plasma concentration of Δ9 desaturated 3-thiatetradecanoic acid. 3-thiatetradecanoic acid was found to be safe and well tolerated [3].

References:

1. Berge K, Tronstad KJ, Flindt EN, Rasmussen TH, Madsen L, Kristiansen K, Berge RK. Tetradecylthioacetic acid inhibits growth of rat glioma cells ex vivo and in vivo via PPAR-dependent and PPAR-independent pathways. Carcinogenesis. 2001 Nov;22(11):1747-55.
2. Asiedu, D.K.,Froyland, L.,Vaagenes, H., et al. Long-term effect of tetradecylthioacetic acid: A study on plasma lipid profile and fatty acid composition and oxidation in different rat organs. Biochimica et Biophysica Acta 1300, 86-96 (1996).3. Pettersen RJ, Salem M, Skorve J, Ulvik RJ, Berge RK, Nordrehaug JE. Pharmacology and safety of tetradecylthioacetic acid (TTA): phase-1 study. J Cardiovasc Pharmacol. 2008 Apr;51(4):410-7.