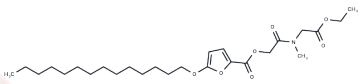
Data Sheet (Cat.No.T3510)

TargetMol

Olumacostat Glasaretil

Chemical Properties



CAS No. : 1261491-89-7

Formula: C26H43NO7

Molecular Weight: 481.62

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	Olumacostat glasaretil is a small molecule inhibitor of acetyl coenzyme A carboxylase (ACC). It has been used in trials studying the treatment of Acne Vulgaris.
Targets(IC50)	Acetyl-CoA Carboxylase
In vitro	Acetyl coenzyme A carboxylase plays a pivotal role in regulating the initial, critical step of fatty acid biosynthesis. Olumacostat glasaretil effectively impedes de novo lipid formation in both primary and transformed human sebocytes, significantly diminishing fatty acid synthesis to equal or lower than baseline levels at a concentration of 3 μM. Moreover, cultures of SEB-1 cells exhibit a marked reduction, between 85% to 90%, in ^14C-acetate incorporation when treated with 20 μM of olumacostat glasaretil, relative to untreated controls. At a lower dose of 3 μM, olumacostat glasaretil notably decreases the accumulation of several lipids in sebocytes, including triacylglycerol, cholesteryl/wax ester, diacylglycerol, cholesterol, and phospholipids by approximately 86%, 57%, 51%, 39%, and 37%, respectively[1].
In vivo	Olumacostat glasaretil, a pro-drug of the ACC inhibitor 5-(tetradecyloxy)-2-furoic acid (TOFA), is designed for improved in vivo delivery. Unlike TOFA, topical application of olumacostat glasaretil notably decreases the size of sebaceous glands in hamster ears. HPLC analysis of hamster ear extracts indicates that treatment with olumacostat glasaretil raises ACC levels and increases the acetyl-CoA to free CoA ratio in subjects, suggesting enhanced fatty acid oxidation linked to ACC inhibition. Furthermore, MALDI imaging demonstrates that olumacostat glasaretil, when applied to Yorkshire pig ears, predominantly accumulates in sebaceous glands compared to the adjacent dermis. After 12 weeks, olumacostat glasaretil treatment results in significant decreases in both inflammatory and noninflammatory lesions, with a higher percentage of patients achieving at least a 2-grade improvement in investigator global assessment score compared to those treated with a placebo vehicle.
Cell Research	Primary human sebocytes are grown to confluence in 96-well plates in sebocyte growth medium and stimulated with 1 μM human insulin and 1 μM liver X receptor (LXR) agonist T0901317 in the presence of increasing concentrations of TOFA or olumacostat glasaretil in culture medium containing 0.1% DMSO. After 24 hours, stimulation/treatment medium is removed and test articles are reapplied in labeling medium containing [14C]-acetate. Following an additional 16 hours, cells are harvested using trypsin/EDTA. Lipid extracts are prepared and the amount of [14C]-acetate incorporation is determined by

Cell Research	liquid scintillation as a measure of de novo fatty acid synthesis[1].

Solubility Information

Solubility	H2O: < 0.1 mg/mL (insoluble), DMSO: 125 mg/mL (259.54 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (8.31 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.0763 mL	10.3816 mL	20.7633 mL
5 mM	0.4153 mL	2.0763 mL	4.1527 mL
10 mM	0.2076 mL	1.0382 mL	2.0763 mL
50 mM	0.0415 mL	0.2076 mL	0.4153 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

Hunt DW, et al. Inhibition of Sebum Production with the Acetyl Coenzyme A Carboxylase Inhibitor OlumacostatGlasaretil. J Invest Dermatol. 2017 Mar 1. pii: S20022-202X(17)320186-0.
Bissonnette R, et al. Olumacostat glasaretil, a novel topical sebum inhibitor, in the treatment of acne vulgaris: A phase IIa, multicenter, randomized, vehicle-controlled study. J Am Acad Dermatol. 2017 Jan;76(1):33-39.