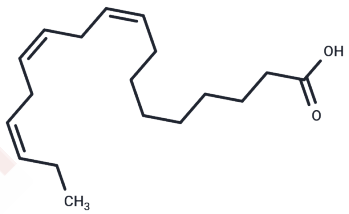
Data Sheet (Cat.No.T3P2904)

TargetMol

α-Linolenic acid

Chemical Properties



CAS No. : 463-40-1

Formula: C18H30O2

Molecular Weight: 278.43

Storage: Store at low temperature,Store under nitrogen
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	α-Linolenic Acid (ALA) is an essential fatty acid that cannot be synthesized by the human body and is obtained by isolating it from seed oils. α-Linolenic acid has been shown to improve memory, inhibit thrombosis, and lower blood lipids.
Targets(IC50)	Akt,PI3K
In vitro	**METHODS**: Osteosarcoma cells MG63, 143B and U2OS were treated with α-Linolenic Acid (10-200 μM) for 24 h. Cell viability was determined by MTT assay. **RESULTS**: α-Linolenic Acid showed a highly inhibitory effect on cell proliferation in a dose-dependent manner, with IC50 values of 51.69±0.14 μM in MG63 cells, 56.93±0.23 μM in 143B cells and 49.8±0.50 μM in U2OS cells.[1] **METHODS**: Breast cancer cells MDA-MB-231 and MCF-7 were treated with α-Linolenic Acid (25-100 μM) for 24 h. Apoptosis was detected by flow cytometer. **RESULTS**: The percentage of apoptotic cells in the early (from 2.9% to 23.5% and from 5.5% to 16.7%, respectively) and late (from 0.6% to 3.4% and from 2.0% to 13.8%, respectively) apoptotic stages was significantly increased in MDA-MB-231 and MCF-7 cells treated with 100 μM α-Linolenic Acid. percentage significantly increased, which was significantly higher compared to untreated control cells. [2]
In vivo	**METHODS**: To study the therapeutic effect on colitis in mice, α-Linolenic Acid (150-300 mg/kg, dispersed in 0.25% Tween-20) was administered by gavage to HFHSD-fed BABL/c mice once daily for nine weeks. At the end of nine weeks, experimental colitis was induced by intracolonic injection of TNBS. **RESULTS**: Low α-Linolenic Acid administration significantly ameliorated TNBS-induced clinical manifestations, body weight loss, spleen weight loss, and histologic damage. In contrast, high α-Linolenic Acid administration did not improve colitis and even exacerbated symptoms.HFHSD exacerbated TNBS-induced colitis via the Th1/Th17 pathway. Low α-Linolenic Acid showed a protective effect against TNBS-induced colitis via the Th1/Th2/Th17 pathway. [3]

Solubility Information

Solubility	Ethanol: 100 mg/mL (359.16 mM),Sonication is recommended. DMSO: 100 mg/mL (359.16 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: 10 mg/mL (35.92 mM),Solution. *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	3.5916 mL	17.9578 mL	35.9157 mL
5 mM	0.7183 mL	3.5916 mL	7.1831 mL
10 mM	0.3592 mL	1.7958 mL	3.5916 mL
50 mM	0.0718 mL	0.3592 mL	0.7183 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

Fan H, et al. α-Linolenic Acid Suppresses Proliferation and Invasion in Osteosarcoma Cells via Inhibiting Fatty Acid Synthase. Molecules. 2022 Apr 24;27(9):2741.

Wu Z K, Li H Y, Zhu Y L, et al.Neuroprotective and anti-inflammatory effects of eicosane on glutamate and NMDA-induced retinal ganglion cell injury.International Journal of Ophthalmology.2024, 17(4): 638.

Wenyuan Huang, et al. α-Linolenic acid induces apoptosis, inhibits the invasion and metastasis, and arrests cell cycle in human breast cancer cells by inhibiting fatty acid synthase. Journal of Functional Foods. 2022; 92: 105041.

Wen J, et al. Alpha-linolenic acid given as an anti-inflammatory agent in a mouse model of colonic inflammation. Food Sci Nutr. 2019 Nov 19;7(12):3873-3882.

Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481