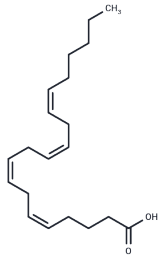
Data Sheet (Cat.No.T4129)

TargetMol

Arachidonic acid

Chemical Properties



CAS No. : 506-32-1

Formula: C20H32O2

Molecular Weight: 304.47

Appearance: no data available

Storage: keep away from direct sunlight,store under nitrogen, keep away from moisture,store at low temperature
Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Arachidonic acid (Immunocytophyte) is an unsaturated, essential fatty acid. It is found in animal and human fat as well as in the liver, brain, and glandular organs, and is a constituent of animal phosphatides. It is formed by the synthesis from dietary linoleic acid and is a precursor in the biosynthesis of prostaglandins, thromboxanes, and leukotrienes.
Targets(IC50)	Endogenous Metabolite
In vitro	**METHODS**: RAW264.7 and PBMC-derived macrophages were treated with Arachidonic acid (40-80 μM) for 12-24 h and cell viability was determined by CCK8 assay. **RESULTS**: Arachidonic acid significantly inhibited macrophage viability in a dose-dependent manner within 12 h, and more inhibition was observed between 12 h and 24 h. Arachidonic acid was also shown to inhibit macrophage viability in a dose-dependent manner. [1] **METHODS**: Human breast cancer cells, MDA-MB-231, were treated with Arachidonic acid (8 μM) for 48 h. Caspase activity was measured using a spectrofluorophotometer. **RESULTS**: MDA-MB-231 cells stimulated with Arachidonic acid for 48 h showed a significant increase in caspase-3 activity, and Arachidonic acid also induced significant activation of caspase-8 and caspase-9. [2]
In vivo	**METHODS**: To test the effect on the inflammatory response, Arachidonic acid (150 mg/kg in 1% CMC Na) was administered orally to C57BL/6 mice with high-fat diet (HFD)-induced cardiac injury every two days for eight weeks. **RESULTS**: Arachidonic acid treatment prevented MD2/TLR4 dimerization, induction of inflammatory factors, and tissue damage through TLR4-mediated inflammatory responses in a high-fat diet obese mouse model. [3]

Solubility Information

Solubility	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 10 mg/mL (32.84 mM),Suspension. DMSO: 100 mg/mL (328.44 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.2844 mL	16.422 mL	32.844 mL
5 mM	0.6569 mL	3.2844 mL	6.5688 mL
10 mM	0.3284 mL	1.6422 mL	3.2844 mL
50 mM	0.0657 mL	0.3284 mL	0.6569 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

Shen Z, et al. Arachidonic acid induces macrophage cell cycle arrest through the JNK signaling pathway. Lipids Health Dis. 2018 Feb 9;17(1):26.
Fang X X, Wei P, Zhao K, et al.Fatty acid-binding proteins 3, 7, and 8 bind cholesterol and facilitate its egress from lysosomes.Journal of Cell Biology.2024, 223(4).
Cantonero C, et al. Arachidonic Acid Attenuates Cell Proliferation, Migration and Viability by a Mechanism Independent on Calcium Entry. Int J Mol Sci. 2020 May 7;21(9):3315.
Zhang Y, et al. Arachidonic acid inhibits inflammatory responses by binding to myeloid differentiation factor-2 (MD2) and preventing MD2/toll-like receptor 4 signaling activation. Biochim Biophys Acta Mol Basis Dis. 2020 May 1;1866(5):165683.

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