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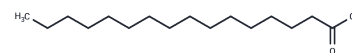
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## Palmitic acid

## Chemical Properties

CAS No. :	57-10-3
Formula:	C16H32O2
Molecular Weight:	256.42
Appearance:	no data available
Storage:	Powder: -20°C for 3 years   In solvent: -80°C for 1 year



## Biological Description

Description	Palmitic acid (Cetylic acid) is a natural product, a common saturated fatty acid found in animals, plants and microorganisms. Palmitic acid has antitumor activity.
Targets(IC50)	HSP,Endogenous Metabolite
In vitro	<p><b>METHODS:</b> Mouse microglia BV2 were treated with Palmitic acid (25-200 nM) for 6-48 h, and cell viability was measured by MTT.</p> <p><b>RESULTS:</b> Palmitic acid had concentration- and time-dependent inhibitory effects on microglia viability. [1]</p> <p><b>METHODS:</b> Monocyte-derived dendritic cells MoDC were treated with Palmitic acid (150 <math>\mu</math>M) for 12 h. The expression of DC co-stimulatory factors was measured by Flow Cytometry.</p> <p><b>RESULTS:</b> Palmitic acid induced the expression of CD86 and CD83, indicating that the activation and maturation of MoDC were induced simultaneously. [2]</p>
In vivo	<p><b>METHODS:</b> To investigate the effects on adverse biological behaviors in mice, Palmitic acid (0.3-30 <math>\mu</math>mol/mouse in castor oil) was administered as a single intraperitoneal injection to C57BL/6J mice, and biological behaviors were analyzed 2-24 h later.</p> <p><b>RESULTS:</b> In a dose-dependent manner, Palmitic acid rapidly reduced locomotor activity in mice through a mechanism dependent on fatty acid chain length. 24 h after Palmitic acid administration, mice exhibited anxiety-like behaviors, whereas there was no impairment of locomotion, food intake, depression-like behaviors, or spatial memory. [3]</p> <p><b>METHODS:</b> To investigate the effects on myocardial injury, Palmitic acid (5 mM in 500 <math>\mu</math>L solution) was injected intravenously into the tail of wild-type C57BL/6 (B6) and Md2-/- (KO) mice once a day for seven days.</p> <p><b>RESULTS:</b> Palmitic acid induced myocardial inflammatory injury via TLR4 accessory protein MD2 and protected Md2 knockout mice from myocardial injury induced by Palmitic acid and high-fat diet. [4]</p>
Kinase Assay	As sources of PLA2, human recombinant sPLA2 (type IIA) is purified from CHO cells transfected with the PLA2 gene and rabbit recombinant platelet cPLA2 is obtained through its expression in baculovirus. The standard reaction mixture (200 $\mu$ L) contained 100 mM Tris-HCl buffer (pH 9.0) with 6 mM CaCl <sub>2</sub> and 20 nmol 1-acyl-[1- <sup>14</sup> C]-arachidonyl-sn-glycerophosphoethanolamine (2000 cpm/nmol) in the presence or absence of Tanshinone I. The reaction is started by adding 50 ng purified sPLA2 or cPLA2. After 20 min at 37°C, the free fatty acid generated is analysed. Under these

standard conditions, the reaction mixture in the absence of Tanshinone I released approximately 10% of free fatty acid from the phospholipid substrate added[1].

### Solubility Information

Solubility	DMSO: 2.56 mg/mL (10 mM), Ethanol: 27.78 mg/mL (108.33 mM), Sonication is recommended. ( $< 1$ mg/ml refers to the product slightly soluble or insoluble)
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### Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.8999 mL	19.4993 mL	38.9985 mL
5 mM	0.780 mL	3.8999 mL	7.7997 mL
10 mM	0.390 mL	1.9499 mL	3.8999 mL
50 mM	0.078 mL	0.390 mL	0.780 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

Urso CJ, et al. Palmitic Acid Lipotoxicity in Microglia Cells Is Ameliorated by Unsaturated Fatty Acids. *Int J Mol Sci.* 2021 Aug 23;22(16):9093.

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