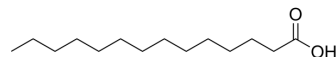


Myristic acid

Cat. No.:	HY-N2041		
CAS No.:	544-63-8		
Molecular Formula:	C ₁₄ H ₂₈ O ₂		
Molecular Weight:	228.37		
Target:	Endogenous Metabolite; NF-κB; Bacterial		
Pathway:	Metabolic Enzyme/Protease; NF-κB; Anti-infection		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 200 mg/mL (875.77 mM; Need ultrasonic)
Ethanol : 100 mg/mL (437.89 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	4.3789 mL	21.8943 mL	43.7886 mL
	5 mM	0.8758 mL	4.3789 mL	8.7577 mL
	10 mM	0.4379 mL	2.1894 mL	4.3789 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: Cremophor EL
Solubility: 40 mg/mL (175.15 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 5 mg/mL (21.89 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 5 mg/mL (21.89 mM); Clear solution
- Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (10.95 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Myristic acid is an orally active saturated 14-carbon fatty acid found in most animal and plant fats, especially milk fat coconut oil, palm oil and nutmeg oil. Myristic acid exerts anti-inflammatory activity through the NF-κB pathway. Myristic acid has antibacterial, anti-inflammatory and analgesic properties^{[1][2][3][4]}.

IC₅₀ & Target	Human Endogenous Metabolite																
In Vitro	<p>Myristic acid (100, 150, 200 μM, 24 h) regulates the production of triglyceride in bovine mammary epithelial cells through ubiquitination pathway^[1].</p> <p>Myristic acid (3-1000 μM, 10 min) can inhibit the activity of bacterial ABC transporter BmrA^[2].</p> <p>Myristic acid (12.5-200 μg/mL, 24 h) exerts in vitro anti-inflammatory activity by increasing (58%) IL-10 production in LPS (HY-D1056)-stimulated macrophages^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Western Blot Analysis^[1]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>MAC-T</td> </tr> <tr> <td>Concentration:</td> <td>100, 150, 200 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>24 h</td> </tr> <tr> <td>Result:</td> <td>Increased the level of protein ubiquitination.</td> </tr> </table> <p>Cell Viability Assay^[3]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>J774A.1 macrophages</td> </tr> <tr> <td>Concentration:</td> <td>12.5, 25, 50, 100,200 μg/mL</td> </tr> <tr> <td>Incubation Time:</td> <td>24 h</td> </tr> <tr> <td>Result:</td> <td>Showed non-cytotoxic effects in LPS-stimulated J774A.1 macrophages at 25 μg/mL.</td> </tr> </table>	Cell Line:	MAC-T	Concentration:	100, 150, 200 μM	Incubation Time:	24 h	Result:	Increased the level of protein ubiquitination.	Cell Line:	J774A.1 macrophages	Concentration:	12.5, 25, 50, 100,200 μg/mL	Incubation Time:	24 h	Result:	Showed non-cytotoxic effects in LPS-stimulated J774A.1 macrophages at 25 μg/mL.
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In Vivo	<p>Myristic acid (12.5-100 mg/kg, orally, Single dose) has good anti-inflammatory effect on ear edema induced by acute (ED50 = 62 mg/kg) and chronic (ED50 = 77 mg/kg) mice^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>TPA-induced ear edema in mice^[3]</td> </tr> <tr> <td>Dosage:</td> <td>12.5, 25, 50, 100 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>p.o.</td> </tr> <tr> <td>Result:</td> <td>Decreased ear edema inflammation in the acute and chronic TPA assays with IC₅₀ values of 62 and 77 mg/kg, respectively in a dose-dependent manner. Attenuated the acetic acid-induced abdominal contortions with ED₅₀ values of 32 mg/kg.</td> </tr> </table>	Animal Model:	TPA-induced ear edema in mice ^[3]	Dosage:	12.5, 25, 50, 100 mg/kg	Administration:	p.o.	Result:	Decreased ear edema inflammation in the acute and chronic TPA assays with IC ₅₀ values of 62 and 77 mg/kg, respectively in a dose-dependent manner. Attenuated the acetic acid-induced abdominal contortions with ED ₅₀ values of 32 mg/kg.								
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CUSTOMER VALIDATION

- Front Cell Dev Biol. 2021 Jun 11;9:684393.
- Eur J Lipid Sci Technol. 2023 Feb 25.

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REFERENCES

[1]. Hu M, et al. Myristic acid regulates triglyceride production in bovine mammary epithelial cells through the ubiquitination pathway. Agriculture, 2023, 13(10): 1870.

[2]. Oepen K, et al. Myristic Acid Inhibits the Activity of the Bacterial ABC Transporter BmrA. *Int J Mol Sci.* 2021 Dec 17;22(24):13565.

[3]. Alonso-Castro AJ, et al. Myristic acid reduces skin inflammation and nociception. *J Food Biochem.* 2022 Jan;46(1):e14013.

[4]. Huang Q, et al. Anti-inflammatory effects of myristic acid mediated by the NF- κ B pathway in lipopolysaccharide-induced BV-2 microglial cells. *Mol Omics.* 2023 Oct 30;19(9):726-734.

Caution: Product has not been fully validated for medical applications. For research use only.

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