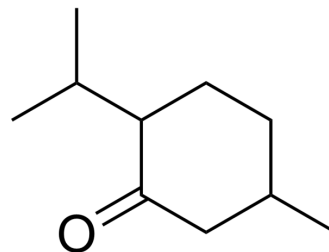


Menthone

Cat. No.:	HY-N2381		
CAS No.:	10458-14-7		
Molecular Formula:	C ₁₀ H ₁₈ O		
Molecular Weight:	154.25		
Target:	Parasite; NF-κB		
Pathway:	Anti-infection; NF-κB		
Storage:	Pure form	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro	DMSO : 100 mg/mL (648.30 mM; Need ultrasonic)			
		Solvent Concentration	Mass	
			1 mg	5 mg
			10 mg	
Preparing Stock Solutions	1 mM	6.4830 mL	32.4149 mL	64.8298 mL
	5 mM	1.2966 mL	6.4830 mL	12.9660 mL
	10 mM	0.6483 mL	3.2415 mL	6.4830 mL
Please refer to the solubility information to select the appropriate solvent.				
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (16.21 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (16.21 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (16.21 mM); Clear solution 			

BIOLOGICAL ACTIVITY

Description	Menthone, an orally active monoterpene that can be isolated from plants and Mentha oil with antibacterial, antitumor, antioxidation, and antiviral properties. Menthone is a main volatile component of the essential oil, and has anti-inflammatory properties in Schistosoma mansoni infection and rheumatoid arthritis ^{[1][2]} .
IC₅₀ & Target	Schistosome
In Vitro	Menthone (0.05-500 μM, 48 h) has optimal concentration for murine primary lung mast cells viability are 0.5, 5 and 50 μM ^[3] .

Menthone (0.5-50 μ M, 48 h) inhibits the secretion of proinflammatory cytokine TNF- α and have anti-inflammatory potential to LPS-stimulated lung mast cells^[3].

Menthone (100 μ M, 24 h) inhibits activation of the key transcription factor STAT1 of IFN-I signaling and promotes Tyk2 polyubiquitination to reduce Tyk2 protein levels in 2fTGH cells^[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis^[4]

Cell Line:	2fTGH
Concentration:	100 μ M
Incubation Time:	24 h
Result:	Decreased the protein levels of these two ISGs (IFIT1 and PKR) induced by IFN- α . Reduced the levels of p-STAT1 in the nucleus. Attenuated menthoneinduced degradation of Tyk2 protein by MG132. Upregulated K48-linked/K63-linked polyubiquitination of Tyk2.

In Vivo

Menthone (100 mg/kg, Articulis injection, 14 days) inhibits the expression of Th1 and Th17 cells in CIA mouse model^[1].

Menthone (8-200 mg/kg, i.g. , daily, 5 weeks) improves the allergic inflammatory statu of the lungs and airways in OVA-sensitized and challenged allergic asthmatic inflammation mouse model by modulating the Th2-biased immune balance and mitigating mast cell degranulation^[3].

Menthone (100 mg/kg, Articulis injection, 14 days) contributes to the relief of local inflammation of rheumatoid arthritis in CIA mice^{[1][4]}.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	OVA-sensitized and challenged allergic asthmatic inflammation mouse model ^[3]
Dosage:	8-200 mg/kg
Administration:	i.g., daily, 5 weeks
Result:	Reversed the allergic inflammation status through at medium and high doses. Decreased total cell number and eosinophilia into BALF. Increased the percentage of monocytes/macrophages and Th1 (IL-2+IFN- γ)/Th2 (IL-4+IL-5) cytokine secretion ratio in BALF. Decreased the levels of otaxin and protein in BALF and reduced the release of β -hexosaminidase from lung mast cells. Inhibited CC receptor 3 and CXC receptor 1 gene expression levels.

Animal Model:	CIA mouse model ^{[1][4]}
Dosage:	100 mg/kg
Administration:	Articulis injection, 14 days
Result:	Decreased degree of posterior palm swelling and alleviated the inflammation in the local knuckles . Increased the levels of serum Creactive protein (CRP). Decreased the levels of ISGs (Ifit1, Isg15, and Mx1) and proinflammatory cytokines (TNF- α , IL-6, and IL-1 β) in the finger joint tissues of the mice. Decreased the number of Th1 and Th17 cells. Decreased the levels of T-bet and ROR γ T gene transcription and increased the levels of GATA3 and Foxp3.

Didn't produce severe hepatorenal toxicity.

REFERENCES

- [1]. Chen X, et al. A Natural Plant Ingredient, Menthone, Regulates T Cell Subtypes and Lowers Pro-inflammatory Cytokines of Rheumatoid Arthritis. *J Nat Prod.* 2022 Apr 22;85(4):1109-1117.
- [2]. Su YH, et al. Menthone supplementation protects from allergic inflammation in the lungs of asthmatic mice. *Eur J Pharmacol.* 2022 Sep 15;931:175222.
- [3]. Chen X, et al. Menthone inhibits type-I interferon signaling by promoting Tyk2 ubiquitination to relieve local inflammation of rheumatoid arthritis. *Int Immunopharmacol.* 2022 Nov;112:109228.
- [4]. Mauricio G Zaia, et al. Anti-Inflammatory Properties of Menthol and Menthone in *Schistosoma mansoni* Infection. *Front Pharmacol.* 2016 Jun 17;7:170.
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Caution: Product has not been fully validated for medical applications. For research use only.

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