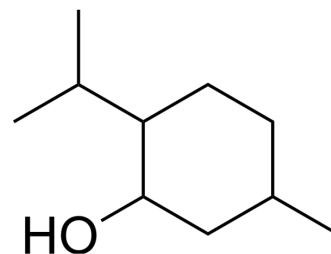


## Menthol

<b>Cat. No.:</b>	HY-N1369		
<b>CAS No.:</b>	1490-04-6		
<b>Molecular Formula:</b>	C <sub>10</sub> H <sub>20</sub> O		
<b>Molecular Weight:</b>	156.27		
<b>Target:</b>	Calcium Channel		
<b>Pathway:</b>	Membrane Transporter/Ion Channel; Neuronal Signaling		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 250 mg/mL (1599.80 mM; Need ultrasonic)			
		Solvent Concentration	Mass	
			1 mg	5 mg
			10 mg	
<b>Preparing Stock Solutions</b>	<b>1 mM</b>	6.3992 mL	31.9959 mL	63.9918 mL
	<b>5 mM</b>	1.2798 mL	6.3992 mL	12.7984 mL
	<b>10 mM</b>	0.6399 mL	3.1996 mL	6.3992 mL
Please refer to the solubility information to select the appropriate solvent.				
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: ≥ 2.08 mg/mL (13.31 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.08 mg/mL (13.31 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 2.08 mg/mL (13.31 mM); Clear solution</li> </ol>			

### BIOLOGICAL ACTIVITY

<b>Description</b>	Menthol is an analgesic and TRPM8 modulator. TRPM8 is a cold temperature sensing ion channel, and Menthol can regulate TRPM8 to exert analgesic and anti-irritation mechanisms. Menthol stimulates cold receptors and produces a cooling sensation by inhibiting Ca <sup>++</sup> currents in neuronal cell membranes. Menthol also improves oral nicotine rejection in mice <sup>[1][2][3]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	TRPM8 <sup>[2][3]</sup>

## In Vivo

Menthol (10-200 µg/mL; po; single dose) reduces the aversive effects of oral nicotine (200 µg/mL) in mice, and at higher concentrations, Menthol itself produces irritant<sup>[2]</sup>.

Menthol also strongly inhibits respiratory tract irritation responses via TRPM8 and increases cotinine in the blood. Menthol, as a cigarette additive, may promote smoking and nicotine addiction<sup>[3]</sup>.

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

## CUSTOMER VALIDATION

- Nat Commun. 2024 Feb 6;15(1):1122.
- bioRxiv. 2023 Jun 20.
- bioRxiv. 2023 Jun 3.
- Bioelectron Med. 2022 Apr 6;8(1):7.

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## REFERENCES

[1]. NicolettaGaleotti, et al. Menthol: a natural analgesic compound. Neuroscience Letters. 2002 Apr.

[2]. Ha MA, et al. Menthol attenuates respiratory irritation and elevates blood cotinine in cigarette smoke exposed mice. PLoS One. 2015 Feb 13;10(2):e0117128.

[3]. Fan L, et al. Menthol decreases oral nicotine aversion in C57BL/6 mice through a TRPM8-dependent mechanism. Tob Control. 2016 Nov;25(Suppl 2):ii50-ii54.

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

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