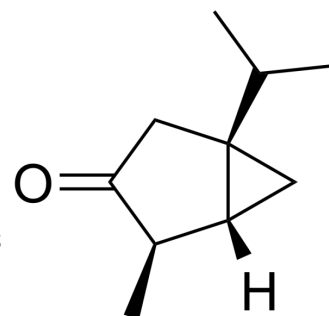


## $\alpha$ -Thujone

<b>Cat. No.:</b>	HY-121618												
<b>CAS No.:</b>	546-80-5												
<b>Molecular Formula:</b>	C <sub>10</sub> H <sub>16</sub> O												
<b>Molecular Weight:</b>	152.23												
<b>Target:</b>	GABA Receptor; Reactive Oxygen Species; Parasite; Apoptosis; Autophagy												
<b>Pathway:</b>	Membrane Transporter/Ion Channel; Neuronal Signaling; Immunology/Inflammation; Metabolic Enzyme/Protease; NF- $\kappa$ B; Anti-infection; Apoptosis; Autophagy												
<b>Storage:</b>	<table border="0"> <tr> <td>Pure form</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>6 months</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 month</td> </tr> </table>	Pure form	-20°C	3 years		4°C	2 years	In solvent	-80°C	6 months		-20°C	1 month
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	4°C	2 years											
In solvent	-80°C	6 months											
	-20°C	1 month											



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 100 mg/mL (656.90 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	6.5690 mL	32.8450 mL	65.6901 mL
	5 mM	1.3138 mL	6.5690 mL	13.1380 mL
	10 mM	0.6569 mL	3.2845 mL	6.5690 mL

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

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility:  $\geq$  2.5 mg/mL (16.42 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE- $\beta$ -CD in saline)  
Solubility:  $\geq$  2.5 mg/mL (16.42 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility:  $\geq$  2.5 mg/mL (16.42 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

$\alpha$ -Thujone is a monoterpene isolated from *Thuja occidentalis* essential oil with potent anti-tumor activities.  $\alpha$ -Thujone is a reversible modulator of the GABA type A receptor and the IC<sub>50</sub> for  $\alpha$ -Thujone is 21  $\mu$ M in suppressing the GABA-induced currents.  $\alpha$ -Thujone induces ROS accumulation-dependent cytotoxicity, also induces cell apoptosis and autophagy.  $\alpha$ -Thujone has antinociceptive, insecticidal, and anthelmintic activity, and easily penetrates the blood-brain barrier<sup>[1][2][3]</sup>.

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## REFERENCES

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- [1]. Agus HH, et al. Involvement of Pca1 in ROS-mediated apoptotic cell death induced by alpha-thujone in the fission yeast (*Schizosaccharomyces pombe*). *FEMS Yeast Res.* 2020 Apr 29. pii: foaa022.
- [2]. Pudełek M, et al. Therapeutic potential of monoterpene  $\alpha$ -thujone, the main compound of *Thuja occidentalis* L. essential oil, against malignant glioblastoma multiforme cells in vitro. *Fitoterapia.* 2019 Apr;134:172-181.
- [3]. Höld KM, et al. Alpha-thujone (the active component of absinthe): gamma-aminobutyric acid type A receptor modulation and metabolic detoxification. *Proc Natl Acad Sci U S A.* 2000 Apr 11;97(8):3826-31.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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