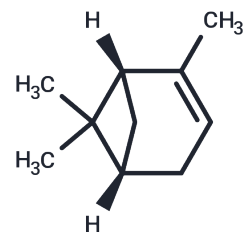


(-)- α -Pinene

Chemical Properties

CAS No. :	7785-26-4
Formula:	C ₁₀ H ₁₆
Molecular Weight:	136.23
Storage:	Pure form: -20°C for 3 years In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.



Biological Description

Description	(-)- α -Pinene ((1S)-(-)-Alpha-Pinene) enhances the quantity of NREMS without affecting the intensity of NREMS by prolonging GABAergic synaptic transmission, acting as a partial modulator of GABAA-BZD receptors and directly binding to the BZD binding site of GABAA receptor.
Targets(IC50)	GABA Receptor,Endogenous Metabolite,Antibacterial,Virus Protease
In vitro	(1S)-(-)-Alpha-Pinene significantly increased the duration of non-rapid eye movement sleep (NREMS) and reduced the sleep latency by oral administration without affecting duration of rapid eye movement sleep and delta activity. (1S)-(-)-Alpha-Pinene potentiated the GABAA receptor-mediated synaptic response by increasing the decay time constant of sIPSCs in hippocampal CA1 pyramidal neurons[1]. These effects of (1S)-(-)-Alpha-Pinene on sleep and inhibitory synaptic response were mimicked by zolpidem, acting as a modulator for GABAA-BZD receptors, and fully antagonized by flumazenil, an antagonist for GABAA-BZD receptor. (1S)-(-)-Alpha-Pinene was found to bind to aromatic residues of α 1- and γ 2 subunits of GABAA-BZD receptors in the molecular model[1].

Solubility Information

Solubility	DMSO: 50 mg/mL (367.03 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 1 mg/mL (7.34 mM),Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	7.3405 mL	36.7026 mL	73.4053 mL
5 mM	1.4681 mL	7.3405 mL	14.6811 mL
10 mM	0.7341 mL	3.6703 mL	7.3405 mL
50 mM	0.1468 mL	0.7341 mL	1.4681 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

- Yang H, et al. α -Pinene, a Major Constituent of Pine Tree Oils, Enhances Non-Rapid Eye Movement Sleep in Mice through GABAA-benzodiazepine Receptors. *Mol Pharmacol*. 2016 Nov;90(5):530-539.
- Kamaitytė-Bukelskienė L, Ložienė K, Labokas J. Dynamics of Isomeric and Enantiomeric Fractions of Pinene in Essential Oil of *Picea abies* Annual Needles during Growing Season. *Molecules*. 2021 Apr 8;26(8):2138.
- Haselton AT, et al. Repellency of α -pinene against the house fly, *Musca domestica*. *Phytochemistry*. 2015 Sep;117:469-475.

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