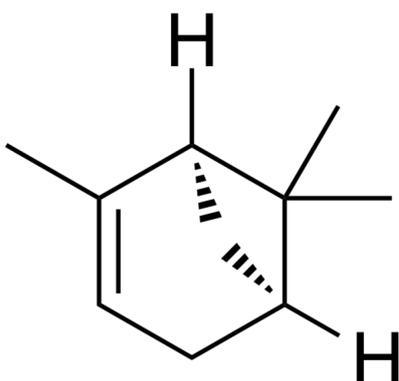


## Certificate of Analysis

Catalog Number	BP15887
Product Name	(-)- $\alpha$ -Pinene

### Physical and Chemical Properties

Synonyms	(1S)-(-)-Alpha-Pinene
CAS No.	7785-26-4
Chemical Formula	C <sub>10</sub> H <sub>16</sub>
Molecular Weight	136.238
Solubility	DMSO: 50 mg/mL (367.03 mM), Need ultrasonic
Storage	Powder: -20°C for 2 years In solvent: -80°C for 1 year
Chemical Structure OR Tested Image	 <p>The image shows the chemical structure of (-)-<math>\alpha</math>-pinene, a bicyclic monoterpene. It consists of a six-membered ring with a double bond between the 2 and 3 positions. A methyl group is attached to the 1 position. A hydrogen atom is attached to the 4 position with a wedge bond, and another hydrogen atom is attached to the 5 position with a dash bond. A methyl group is also attached to the 6 position.</p>

### Product Information

Description	(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.
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. 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 $\alpha$ 1- and $\gamma$ 2 subunits of GABAA-BZD receptors in the molecular model.

## Analytical Data

HPLC	Shows Min >99% purity
H-NMR	Consistent with structure
Stability and Solubility Advice	Information on product stability, especially in solution, has rarely been reported and in most cases we can only provide a general guideline. We recommend that once the stock solution has been prepared, it be stored in equal quantities in sealed vials and used within 1 month. Avoid repeated freezing and thawing cycles. Storage conditions for some special products should be referred to their storage details.

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