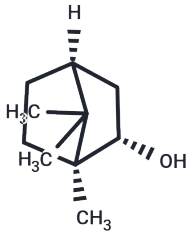
Data Sheet (Cat.No.T77796)

TargetMol

DL-Borneol

Chemical Properties



CAS No. : 507-70-0

Formula: C10H18O

Molecular Weight: 154.25

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	DL-Borneol ((endo)-Borneol) is a small molecule extracted from traditional Chinese medicine (TCM). It is an orally bioadjuvant that improves drug delivery to the brain and is commonly used as an adjuvant ingredient in TCM for the treatment of cardio-cerebral vascular diseases.
Targets(IC50)	GABA Receptor,Endogenous Metabolite
In vitro	In vitro, Borneol enhances the intracellular accumulation of Rho123 and facilitates the transport of P-gp substrates across the blood-brain barrier (BBB). Additionally, it downregulates the expression of mdr1a mRNA and P-gp. Borneol activates NF-κB, and the inhibition of NF-κB with MG132 and SN50 attenuates the reduction in P-gp induced by Borneol. Treatment with 10 μg/mL and 20 μg/mL Borneol transiently increases the phosphorylation of IκB expression at 30 min post-treatment. Furthermore, Borneol treatment leads to a decrease in P-gp expression in brain microvascular endothelial cells (BMECs)[1].
In vivo	Borneol significantly counteracts the process of epileptogenesis in PTZ-kindled mice. Borneol-treated animals show amelioration of biochemical alterations induced by PTZ kindling, as evidenced by decreased lipid peroxidation (LPO) and increased levels of superoxide dismutase (SOD), glutathione (GSH), and catalase (CAT). The distinct neuronal damage observed in the kindled group is suppressed by Borneol. Additionally, Borneol reduces the levels of GFAP, as indicated by reduced immunostaining[3]. The pharmacokinetic traits of Borneol are significantly affected by the pathological damages of ischemia-reperfusion, and there are components in Xingnaojing that inhibit the absorption of Borneol[2].

Solubility Information

Solubility	DMSO: 30 mg/mL (194.49 mM),Sonication is recommended. H2O: <0.1 mg/mL (Insoluble) (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (12.97 mM),Sonication is recommended. *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*

In vivo Formulation	*vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	6.483 mL	32.4149 mL	64.8298 mL
5 mM	1.2966 mL	6.483 mL	12.966 mL
10 mM	0.6483 mL	3.2415 mL	6.483 mL
50 mM	0.1297 mL	0.6483 mL	1.2966 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

Fan X, et al. Borneol Depresses P-Glycoprotein Function by a NF-κB Signaling Mediated Mechanism in a Blood Brain Barrier in Vitro Model. Int J Mol Sci. 2015 Nov 18;16(11):27576-88.
Xu P, et al. Comparative pharmacokinetics of borneol in cerebral ischemia-reperfusion and sham-operated rats. J Zhejiang Univ Sci B. 2014 Jan;15(1):84-91.
Tambe R, et al. Antiepileptogenic effects of borneol in pentylenetetrazole-induced kindling in mice. Naunyn Schmiedebergs Arch Pharmacol. 2016 May;389(5):467-75.
Luo M,et al. Borneol exerts its antipruritic effects by inhibiting TRPA1 and activating TRPM8. J Ethnopharmacol. 2024 Mar 25;322:117581.
Chang TL,et al. Borneol and Luteolin from Chrysanthemum morifolium Regulate Ubiquitin Signal Degradation. J Agric Food Chem. 2018 Aug 8;66(31):8280-8290.