Camphor

Cat. No.: HY-N0808

CAS No.: 76-22-2

Molecular Formula: $C_{10}H_{16}O$

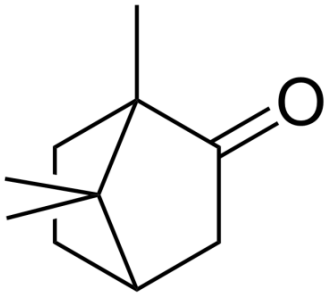
Molecular Weight: 152.23

Target: TRP Channel; Influenza Virus

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling; Anti-infection

Storage:

Powder	-20°C	3 years
	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)

H_2O : 5 mg/mL (32.85 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	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

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (16.42 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (16.42 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (16.42 mM); Clear solution
4. Add each solvent one by one: PBS
   Solubility: 110 mg/mL (722.59 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Camphor ((±)-Camphor) is a topical anti-infective and anti-pruritic and internally as a stimulant and carminative. However, Camphor is poisonous when ingested. Antiviral, antitussive, and anticancer activities[1]. Camphor is a TRPV3 agonist[2].

IC_{50} & Target

TRPV3[2]

In Vitro

Camphor induces fibroblast proliferation through the PI3K/AKT and ERK signaling pathways[3].
The MTT assay results show that 32.5, 65, 130, and 260 μM Camphor increase fibroblast viability to 108.9±6.6%, 118.6±2.8%, 127.7±4.2%, and 131.6±7.2%, respectively, compared to 0 μM Camphor treatment[3].
Camphor (0-260 μM) treatment for 24 hours increases the generation of ROS by up to 17.97% compared to 5.04% in the no-treatment control[3].Camphor (0-260 μM, 24 hours) induces the phosphorylation of PI3K, AKT, ERK, and 4EBP1 in a dose- and time-dependent manner[3].

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

Cell Viability Assay[3]

Cell Line:	Primary dermal fibroblast cells
Concentration:	0-260 μM
Incubation Time:	24 hours
Result:	32.5, 65, 130, and 260 μM increased fibroblast viability to 108.9±6.6%, 118.6±2.8%, 127.7±4.2%, and 131.6±7.2%, respectively, compared to 0 μM treatment.

Western Blot Analysis[3]

Cell Line:	Primary dermal fibroblast cells
Concentration:	0-260 μM
Incubation Time:	24 hours
Result:	Induced the phosphorylation of PI3K, AKT, ERK, and 4EBP1, a repressor of mRNA translation and mTOR substrate, in a dose- and time-dependent manner.

REFERENCES

[1]. Chen W, et al. Camphor--a fumigant during the Black Death and a coveted fragrant wood in ancient Egypt and Babylon--a review. Molecules. 2013 May 10;18(5):5434-54.

[2]. Billen B, et al. Different ligands of the TRPV3 cation channel cause distinct conformational changes as revealedby intrinsic tryptophan fluorescence quenching. J Biol Chem. 2015 May 15;290(20):12964-74.

[3]. Tran TA, et al. Camphor Induces Proliferative and Anti-senescence Activities in Human Primary Dermal Fibroblasts and Inhibits UV-Induced Wrinkle Formation in Mouse Skin. Phytother Res. 2015 Dec;29(12):1917-25.

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

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