Shogaol

Cat. No.: HY-14616

CAS No.: 555-66-8

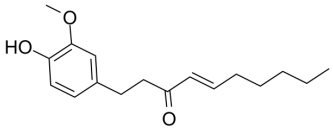
Molecular Formula: $C_{17}H_{24}O_3$

Molecular Weight: 276.37

Target: Autophagy; Autophagy

Pathway: Autophagy

Storage: 4°C, protect from light
* In solvent : -80°C, 1 year; -20°C, 6 months (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 50 mg/mL (180.92 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.6183 mL	18.0917 mL	36.1834 mL
5 mM	0.7237 mL	3.6183 mL	7.2367 mL
10 mM	0.3618 mL	1.8092 mL	3.6183 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 (9.05 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (9.05 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.05 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Shogaol ([6]-Shogaol), an active compound isolated from Ginger (Zingiber officinale Rosc), exhibits a variety of biological activities including anticancer, anti-inflammation, and anti-oxidation.

In Vitro

Shogaol ([6]-Shogaol) has anticancer activity against several cell lines[1]. Shogaol ([6]-Shogaol) is identified to be cytotoxic in various cell lines, with KB (IC_{50}=7.4±2.2 μM) and HL60 (IC_{50}=7.9±2.0 μM) cells most susceptible to 6-shogaol[2]. 6-shogaol (IC_{50}=8 μM) has much stronger growth inhibitory effects than 6-gingerol (IC_{50}=150 μM) on HCT-116 human colon cancer cells [3]. Shogaol ([6]-Shogaol) stimulates phosphorylations of mitogen-activated protein kinases (MAPKs) such as ERK, JNK, and p38. Moreover, the 6-shogaol-induced expressions of Nrf2 and HO-1 are attenuated by treatments of SB202190 (a p38

	specific inhibitor) and LY294002 (an Akt specific inhibitor)[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	The Shogaol ([6]-Shogaol) decreases the diethylnitrosamine (DEN)-mediated elevations of serum aspartate transaminase and alanine transaminase as well as the DEN-induced hepatic lipid peroxidation. Inductions of Nrf2 and HO-1 by 6-shogaol are also confirmed in the mice. The administration of Shogaol ([6]-Shogaol) to the mice also restores the DEN-reduced activity and protein expression of hepatic antioxidant enzymes such as superoxide dismutase, glutathione peroxidase and catalase[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [4]	The effects of 6-shogaol on the viability of HepG2 cells are determined by a MTT assay after 24 h treatment. The data are expressed as percent cell viability compared to that of control. The concentrations of the treatments 6-shogaol varied from 10 to 100 μg/mL[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [4]	Mice: Male Balb/c mice are treated with 6-shogaol-rich ginger extracts (10 and 100 mg/kg b.w.) or silymarin (100 mg/kg b.w.), a positive control, and challenged with diethyl-nitrosoamine (DEN, 30 mg/kg b.w.) 3 days per week for 3 weeks[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Jan;11(1):143-155.
- PLoS Biol. 2018 Jul 12;16(7):e2004921.
- Vet Parasitol. 2023 Jun 14, 109972.
- Research Square Preprint. 2021 Jul.

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REFERENCES

[1]. Semwal RB, et al. Gingerols and shogaols: Important nutraceutical principles from ginger. Phytochemistry. 2015 Sep;117:554-68.

[2]. Peng F, et al. Cytotoxic, cytoprotective and antioxidant effects of isolated phenolic compounds from fresh ginger. Fitoterapia. 2012 Apr;83(3):568-85.

[3]. Sang S, et al. Increased growth inhibitory effects on human cancer cells and anti-inflammatory potency of shogaols from Zingiber officinale relative to gingerols. J Agric Food Chem. 2009 Nov 25;57(22):10645-50.

[4]. Bak MJ, et al. 6-shogaol-rich extract from ginger up-regulated the antioxidant defense systems in cells and mice. Molecules. 2012 Jul 4;17(7):8037-55.

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