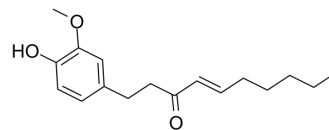


Shogaol

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, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

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

Preparing Stock Solutions	Solvent Concentration	Mass		
		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

- 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
- 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
- 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 (IC₅₀=7.4±2.2 μM) and HL60 (IC₅₀=7.9±2.0 μM) cells most susceptible to 6-shogaol^[2]. 6-shogaol (IC₅₀=8 μM) has much stronger growth inhibitory effects than 6-gingerol (IC₅₀=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

	<p>specific inhibitor) and LY294002 (an Akt specific inhibitor)^[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
In Vivo	<p>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.</p>

PROTOCOL

Cell Assay ^[4]	<p>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.</p>
Animal Administration ^[4]	<p>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.</p>

CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Jan;11(1):143-155.
- PLoS Biol. 2018 Jul 12;16(7):e2004921.
- 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.

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

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