

Product data sheet



MedKoo Cat#: 326663 Name: Shogaol (6-Shogaol) CAS#: 555-66-8 Chemical Formula: C ₁₇ H ₂₄ O ₃ Exact Mass: 276.1725 Molecular Weight: 276.38		
Product supplied as:		Powder
Purity (by HPLC):		≥ 98%
Shipping conditions		Ambient temperature
Storage conditions:		Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Shogaol, also known as (6)-shogaol, is a pungent constituent of ginger similar in chemical structure to gingerol. Like zingerone, it is produced when ginger is dried or cooked. Shogaols are artifacts formed during storage or through excess heat, probably created by a dehydration reaction of the gingerols. The ratio of shogaols to gingerols sometimes is taken as an indication of product quality. Among ginger constituents, it has a very strong antitussive (anti-cough) effect. Both shogaol and gingerols reduced blood pressure and gastric contraction. Shogaol has been shown to induce apoptosis (kill) in human colorectal carcinoma cells via reactive oxygen species. It is broken down into 16 metabolites via the mercapturic acid pathway. Acetylcysteine was found to reduce effectiveness of shogaol's apoptotic properties.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	20	72.36
DMSO	20	72.36
Ethanol	20	72.36

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.62 mL	18.09 mL	36.18 mL
5 mM	0.72 mL	3.62 mL	7.24 mL
10 mM	0.36 mL	1.81 mL	3.62 mL
50 mM	0.07 mL	0.36 mL	0.72 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

- Peng S, Yu S, Zhang J, Zhang J. 6-Shogaol as a Novel Thioredoxin Reductase Inhibitor Induces Oxidative-Stress-Mediated Apoptosis in HeLa Cells. *Int J Mol Sci.* 2023 Mar 4;24(5):4966. doi: 10.3390/ijms24054966. PMID: 36902397; PMCID: PMC10003455.
- Ozkan T, Hekmatshoar Y, Pamuk H, Ozcan M, Yaman G, Yagiz GC, Akdemir C, Sunguroglu A. Cytotoxic effect of 6-Shogaol in Imatinib sensitive and resistant K562 cells. *Mol Biol Rep.* 2021 Feb;48(2):1625-1631. doi: 10.1007/s11033-021-06141-2. Epub 2021 Jan 30. PMID: 33515349.

In vivo study

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1. Pan S, Li Y, Zhang J. 6-Shogaol prevents benzo (A) pyrene-exposed lung carcinogenesis via modulating PRDX1-associated oxidative stress, inflammation, and proliferation in mouse models. *Environ Toxicol.* 2023 Aug 28. doi: 10.1002/tox.23946. Epub ahead of print. PMID: 37638803.
2. Huh E, Choi JG, Choi Y, Ju IG, Noh D, Shin DY, Kim DH, Park HJ, Oh MS. 6-Shogaol, an Active Ingredient of Ginger, Improves Intestinal and Brain Abnormalities in Proteus Mirabilis-Induced Parkinson's Disease Mouse Model. *Biomol Ther (Seoul).* 2023 Jul 1;31(4):417-424. doi: 10.4062/biomolther.2023.098. Epub 2023 Jun 20. PMID: 37337830; PMCID: PMC10315336.

7. Bioactivity

Biological target:

6-shogaol exhibits a variety of biological activities including anticancer, anti-inflammation, and anti-oxidation.

In vitro activity

6-shogaol promoted oxidative-stress-mediated apoptosis in HeLa cells. 6-shogaol specifically inhibited purified TrxR1 activity by targeting selenocysteine residues was more cytotoxic to HeLa cells than normal cells. The molecular mechanism of 6-shogaol-mediated apoptosis involves TrxR inhibition, followed by an outburst of ROS production.

Reference: *Int J Mol Sci.* 2023 Mar 4;24(5):4966. <https://pubmed.ncbi.nlm.nih.gov/36902397/>

In vivo activity

6-shogaol could be a potential phytochemical and act as a chemopreventive agent in benzopyrene (BaP)-induced lung cancer by enhancing PRDX1 expression. In a mouse model of BaP exposure, 6-shogaol prevented weight loss, increased lung weight, and the total number of tumors. 6-shogaol treatment reverted the activity of BaP-induced lipid peroxidation and antioxidants and impeded the phosphorylation of MAPK family proteins.

Reference: *Environ Toxicol.* 2023 Aug 28. <https://pubmed.ncbi.nlm.nih.gov/37638803/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.