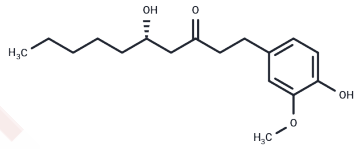
# Data Sheet (Cat.No.T3405)

TargetMol

## [6]-Gingerol

### Chemical Properties



CAS No. : 23513-14-6

Formula: C17H26O4

Molecular Weight: 294.39

Appearance: no data available

Storage: store at low temperature,keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year

### Biological Description

| | |
|---|---|
| Description | [6]-Gingerol ((S)-(+)-[6]Gingerol), an antioxidant, protects HL-60 cells from oxidative stress. It has protective effects for Yous tumors in the pancreas, ovaries, breast tissue, the bowel, among other tissues. |
| Targets(IC50) | Apoptosis,AMPK |
| In vitro | [6]-Gingerol selectively inhibits proliferation and induces apoptosis in colon cancer cells while sparing normal colon cells. It modulates cell signaling by down-regulating phorbol myristate acetate-induced phosphorylation of ERK1/2 and JNK MAP kinases and reducing AP-1 transcription factor activation, with minimal impact on p38 MAP kinase phosphorylation and NF-kappa B activation[1]. Moreover, [6]-gingerol enhances intestinal barrier function and diminishes proinflammatory responses in DSS-treated Caco-2 monolayers, partly by activating AMPK[2]. Additionally, it significantly reduces osteosarcoma cell viability in a dose-dependent manner, increases sub-G1 cell cycle arrest, and activates caspase cascades while adjusting Bcl2 and Bax protein levels[3]. |
| In vivo | In animal studies, [6]-gingerol effectively mitigates DSS-induced colitis symptoms by reversing body weight loss, decreasing intestinal bleeding, and preventing colon shortening. It also inhibits the DSS-induced increase in proinflammatory cytokines (IL-1β, TNFα, and IL-12)[2]. |
| Cell Research | [6]-gingerol stock (20 mg/mL) is prepared in ethanol and the working concentrations are prepared by diluting this stock in dimethyl sufoxide (DMSO). For MTT assay, 5×103 cells/well of human colon cancer cells and 104 cells/well of mouse IECs are seeded in 96-well plates. Cells are treated with [6]-gingerol for 48 h,72 h or 96 h before performing MTT assay and for 16 h before Annexin-V staining[1]. |

### Solubility Information

| | |
|---|---|
| Solubility | Chloroform, Dichloromethane, Ethyl Acetate, Acetone, etc.: Soluble,<br>DMSO: 50 mg/mL (169.84 mM),Sonication is recommended.<br>(< 1 mg/ml refers to the product slightly soluble or insoluble) |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 3.3969 mL | 16.9843 mL | 33.9685 mL |
| 5 mM | 0.6794 mL | 3.3969 mL | 6.7937 mL |
| 10 mM | 0.3397 mL | 1.6984 mL | 3.3969 mL |
| 50 mM | 0.0679 mL | 0.3397 mL | 0.6794 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.

Reference

Radhakrishnan EK, et al. [6]-Gingerol induces caspase-dependent apoptosis and prevents PMA-induced proliferation in colon cancer cells by inhibiting MAPK/AP-1 signaling. PLoS One. 2014 Aug 26;9(8):e104401.
Zhang B, Zhao J, Wang Z, et al. Identification of Multi-Target Anti-AD Chemical Constituents From Traditional Chinese Medicine Formulae by Integrating Virtual Screening and In Vitro Validation. Frontiers in Pharmacology. 2021: 1781
Kamaruddin M S H, Chong G H, Umanan F, et al.Enhancement of 6-gingerol extraction from Bentong ginger using supercritical carbon dioxide.Journal of CO2 Utilization.2023, 72: 102505.
Chang KW, et al. 6-Gingerol modulates proinflammatory responses in dextran sodium sulfate (DSS)-treated Caco-2 cells and experimental colitis in mice through adenosine monophosphate-activated protein kinase (AMPK) activation. Food Funct. 2015 Oct;6(10):3334-41.
Fan J, et al. 6-Gingerol inhibits osteosarcoma cell proliferation through apoptosis and AMPK activation. Tumour Biol. 2015 Feb;36(2):1135-41.