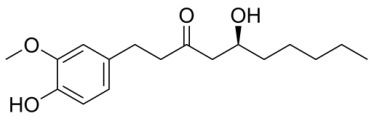
Data Sheet

Product Name:	[6]-Gingerol
Cat. No.:	CS-6333
CAS No.:	23513-14-6
Molecular Formula:	$C_{17}H_{26}O_4$
Molecular Weight:	294.39
Target:	AMPK; Apoptosis
Pathway:	Apoptosis; Epigenetics; PI3K/Akt/mTOR
Solubility:	DMSO : 50 mg/mL (ultrasonic)



BIOLOGICAL ACTIVITY:

[6]-Gingerol is an active compound isolated from Ginger (***Zingiber officinale***), exhibits a variety of biological activities including anticancer, anti-inflammation, and anti-oxidation. IC50 & Target:AMPK[2] ***In Vitro:*** [6]-gingerol inhibits colon cancer cell proliferation and induced apoptosis, while the normal colon cells are unaffected. [6]-gingerol down-regulates phorbol myristate acetate induced phosphorylation of ERK1/2 and JNK MAP kinases and activation of AP-1 transcription factor, but has only little effects on phosphorylation of p38 MAP kinase and activation of NF-kappa B[1]. [6]-gingerol treatment is shown to restore impaired intestinal barrier function and to suppress proinflammatory responses in DSS-treated Caco-2 monolayers. AMPK is activated on [6]-gingerol treatment[2]. Treatment with [6]-gingerol results in a significant decrease in the viability of osteosarcoma cells in a dose-dependent fashion. In parallel, the number of cells arrested at the sub-G1 cell cycle phase is significantly increased. [6]-gingerol induces activation of caspase cascades and regulates cellular levels of Bcl2 and Bax[3]. ***In Vivo:*** In animal studies, [6]-gingerol significantly ameliorates DSS-induced colitis by restoration of body weight loss, reduction in intestinal bleeding, and prevention of colon length shortening. In addition, [6]-gingerol suppresses DSS-elevated production of proinflammatory cytokines (IL-1β, TNFα, and IL-12)[2].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: [1] [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, 5×10^3 cells/well of human colon cancer cells and 10^4 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]. **Animal Administration:** [2]Mice: Mice with DSS-induced colitis are given different oral dosages of [6]-gingerol daily for 14 days. Body weight and colon inflammation are evaluated, and level of proinflammatory cytokines in colon tissues is measured[2].

References:

[1]. 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.

[2]. 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.

[3]. Fan J, et al. 6-Gingerol inhibits osteosarcoma cell proliferation through apoptosis and AMPK activation. Tumour Biol. 2015 Feb;36(2):1135-41.

CAIndexNames:

3-Decanone, 5-hydroxy-1-(4-hydroxy-3-methoxyphenyl)-, (5S)-

SMILES:

CCCCC[C@H](O)CC(CCC1=CC=C(O)C(OC)=C1)=O

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