

Product data sheet



MedKoo Cat#: 530429 Name: 10-Gingerol CAS#: 23513-15-7 Chemical Formula: C ₂₁ H ₃₄ O ₄ Exact Mass: 350.2457 Molecular Weight: 350.499		
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:

[10]-Gingerol is a bioactive compound found in ginger (*Zingiber officinale*) with anti-inflammatory and antioxidant activity.

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
DMSO	65.0	185.45
DMF	30.0	85.59
Ethanol	30.0	85.59
PBS (pH 7.2)	1.0	2.85

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.85 mL	14.27 mL	28.53 mL
5 mM	0.57 mL	2.85 mL	5.71 mL
10 mM	0.29 mL	1.43 mL	2.85 mL
50 mM	0.06 mL	0.29 mL	0.57 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

1. Ediriweera MK, Moon JY, Nguyen YT, Cho SK. 10-Gingerol Targets Lipid Rafts Associated PI3K/Akt Signaling in Radio-Resistant Triple Negative Breast Cancer Cells. *Molecules*. 2020 Jul 10;25(14):3164. doi: 10.3390/molecules25143164. PMID: 32664351; PMCID: PMC7397170.

2. Rasmussen A, Murphy K, Hoskin DW. 10-Gingerol Inhibits Ovarian Cancer Cell Growth by Inducing G2 Arrest. *Adv Pharm Bull*. 2019 Oct;9(4):685-689. doi: 10.15171/apb.2019.080. Epub 2019 Oct 24. PMID: 31857975; PMCID: PMC6912173.

In vivo study

1. Zang L, Kagotani K, Nakayama H, Bhagat J, Fujimoto Y, Hayashi A, Sono R, Katsuzaki H, Nishimura N, Shimada Y. 10-Gingerol Suppresses Osteoclastogenesis in RAW264.7 Cells and Zebrafish Osteoporotic Scales. *Front Cell Dev Biol*. 2021 Mar 3;9:588093. doi: 10.3389/fcell.2021.588093. PMID: 33748100; PMCID: PMC7978033.

2. Fuzer AM, Martin ACBM, Becceneri AB, da Silva JA, Vieira PC, Cominetti MR. [10]-Gingerol Affects Multiple Metastatic Processes and Induces Apoptosis in MDAMB- 231 Breast Tumor Cells. *Anticancer Agents Med Chem*. 2019;19(5):645-654. doi: 10.2174/1871520618666181029125607. PMID: 30370858.

7. Bioactivity

Product data sheet



Biological target:

10-Gingerol has anti-inflammatory, antioxidant and anti-proliferative activities.

In vitro activity

The MTT assay results demonstrated that 10-gingerol can suppress the proliferation of MDA-MB-231/IR cells in a dose and time-dependent manner (Figure 1A). The doses of 10-gingerol causing 50% growth inhibition (IC₅₀) of MDA-MB-231/IR cells at 24 and 48 h incubations were 121.2 and 101.4 μ M, respectively. In contrast, 10-gingerol demonstrated fewer anti-proliferative effects in parental MDA-MB-231 cells (Figure S1 of Supplementary Materials 1), indicating a selective anti-proliferative pattern toward radio-resistant MDA-MB-231 cells. In addition, 10-gingerol exerted fewer cytotoxic effects in MCF-10A normal mammary epithelial cells than the positive control docetaxel at two post-incubation periods [IC₅₀ 10-gingerol: 327.8 μ M (24 h), and 219.8 μ M (48 h); docetaxel: 3.03 μ M (24 h) and 1.78 μ M (48 h)] (Figure 1A).

Reference: Molecules. 2020 Jul; 25(14): 3164. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7397170/>

In vivo activity

To investigate the in vivo efficacy of 10-gingerol, this study conducted a zebrafish study that induced the osteoporosis-like phenotypes by prednisolone. As shown in Figure 3A, the regenerated control scales exhibited mild TRAP activity (red color as osteoclast population) with a normal round shape, whereas the PN-treated scales had an irregular shape, resorbed edges, resorption pits, and considerably increased levels of osteoclasts present, as previously reported. 10-gingerol or GHE treatment resulted in a normal shape, few resorption sites, and decreased osteoclasts compared to PN-treated scales, as well as AL treatment. Quantitative analysis for the TRAP signal revealed significant ($p < 0.01$) decreases in the TRAP-positive osteoclasts in the scales treated with 10-gingerol (0.22-fold), GHE (0.34-fold), and AL (0.36-fold) compared to the PN-treated group (Figure 3B).

Reference: Front Cell Dev Biol. 2021; 9: 588093. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7978033/>

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.