

Product data sheet



MedKoo Cat#: 406451 Name: Purpurogallin CAS#: 569-77-7 Chemical Formula: C ₁₁ H ₈ O ₅ Exact Mass: 220.0372 Molecular Weight: 220.18	
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:

Purpurogallin is the aglycon of several glycosides from nutgalls and oak barks. It can inhibit hydroxyestradiol methylation by catechol-O-methyltransferase. It potently and specifically inhibits PLK, TLR1/TLR2 activation pathway. Purpurogallin showed antiplatelet and antithrombotic activities; anti-inflammatory effects; antitumor activity, anti-oxidation activities; hepatoprotecting effects; antibacterial activity toward gram-positive bacteria.

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	25	113.54
DMSO	25	113.54
Ethanol	1	4.54

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	4.54 mL	22.71 mL	45.42 mL
5 mM	0.91 mL	4.54 mL	9.08 mL
10 mM	0.45 mL	2.27 mL	4.54 mL
50 mM	0.09 mL	0.45 mL	0.91 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

- Zhen AX, Piao MJ, Hyun YJ, Kang KA, Ryu YS, Cho SJ, Kang HK, Koh YS, Ahn MJ, Kim TH, Hyun JW. Purpurogallin Protects Keratinocytes from Damage and Apoptosis Induced by Ultraviolet B Radiation and Particulate Matter 2.5. *Biomol Ther* (Seoul). 2019 Jul 1;27(4):395-403. doi: 10.4062/biomolther.2018.151. PMID: 30419635; PMCID: PMC6609104.
- Kim K, Kim TH, Ihn HJ, Kim JE, Choi JY, Shin HI, Park EK. Inhibitory Effect of Purpurogallin on Osteoclast Differentiation in Vitro through the Downregulation of c-Fos and NFATc1. *Int J Mol Sci*. 2018 Feb 17;19(2):601. doi: 10.3390/ijms19020601. PMID: 29463002; PMCID: PMC5855823.

In vivo study

- Cheng Z, Li X, Ye X, Yu R, Deng Y. Purpurogallin Reverses Neuronal Apoptosis and Enhances "M2" Polarization of Microglia Under Ischemia via Mediating the miR-124-3p/TRAF6/NF-κB Axis. *Neurochem Res*. 2023 Feb;48(2):375-392. doi: 10.1007/s11064-022-03752-4. Epub 2022 Sep 21. PMID: 36131212.

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2. Li X, Cheng Z, Chen X, Yang D, Li H, Deng Y. Purpurogallin improves neurological functions of cerebral ischemia and reperfusion mice by inhibiting endoplasmic reticulum stress and neuroinflammation. *Int Immunopharmacol.* 2022 Oct;111:109057. doi: 10.1016/j.intimp.2022.109057. Epub 2022 Aug 11. PMID: 35964408.

7. Bioactivity

Biological target:

Purpurogallin is effective against Gram-positive bacteria (MICs: 11-110 µg/ml), Gram-negative bacteria (MIC: 110 µg/ml), and *P. falciparum* strain FCB1 clone NC-1 (IC50: 55 µM). It scavenges DPPH radicals and reduces ROS production in keratinocytes. Purpurogallin inhibits EGFR (IC50: 27.5 µM), GST (IC50: 8 µM), prolyl endopeptidase (IC50: 16 µM), glyoxalase I (IC50: 50 µM), and COMT (Ki: 0.074 µM) in cell-free assays.

In vitro activity

Purpurogallin effectively shields human HaCaT keratinocytes from the destructive effects of UVB radiation and particulate matter 2.5 (PM2.5). It prevents apoptosis induced by UVB radiation and PM2.5 and influences the balance of pro-apoptotic and anti-apoptotic proteins through caspase signaling pathways when exposed to UVB irradiation. Purpurogallin reduced apoptosis through MAPK signaling pathways.

Reference: *Biomol Ther (Seoul)*. 2019 Jul 1;27(4):395-403. <https://pubmed.ncbi.nlm.nih.gov/30419635/>

In vivo activity

Purpurogallin demonstrated neuroprotective activity against cerebral ischemia/reperfusion injury in a middle cerebral artery occlusion (MCAO/R) mouse model. Purpurogallin treatment reduced cerebral infarct area, cerebral edema, and neurological deficits in MCAO/R mice. It decreased neuronal apoptosis, levels of endoplasmic reticulum stress proteins, and inflammatory factors in the peri-infarct region of the brain. Purpurogallin acted by blocking the TLR4/NF-κB pathway in the MCAO/R mouse model.

Reference: *Int Immunopharmacol.* 2022 Oct;111:109057. <https://pubmed.ncbi.nlm.nih.gov/35964408/>

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.