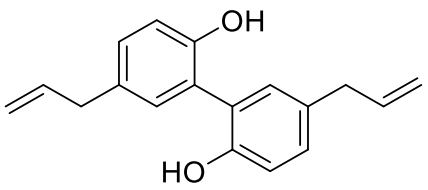
Product data sheet

MedKoo Cat#: 319613 Name: Magnolol CAS#: 528-43-8 Chemical Formula: $C_{18}H_{18}O_2$ Exact Mass: 266.1307 Molecular Weight: 266.34	
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:

Magnolol is known to act on the GABAA receptors in rat cells in vitro as well as having antifungal properties. Magnolol has a number of osteoblast-stimulating and osteoclast-inhibiting activities in cell culture and has been suggested as a candidate for screening for anti-osteoporosis activity. It has anti-periodontal disease activity in a rat model. Magnolol is a bioactive compound found in the bark of the Houpu magnolia (Magnolia officinalis) or in M. grandiflora. The compound exists at the level of a few percent in the bark of species of magnolia, the extracts of which have been used in traditional Chinese and Japanese medicine. In addition to magnolol, related lignans occur in the extracts including honokiol, which is an isomer of magnolol.

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	56.33	211.51
DMF	20.0	75.09
Ethanol	36.5	137.15
Ethanol:PBS (pH 7.2) (1:5)	0.16	0.60

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.75 mL	18.77 mL	37.55 mL
5 mM	0.75 mL	3.75 mL	7.51 mL
10 mM	0.38 mL	1.88 mL	3.75 mL
50 mM	0.08 mL	0.38 mL	0.75 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. Liu CM, Chen SH, Liao YW, Yu CH, Yu CC, Hsieh PL. Magnolol ameliorates the accumulation of reactive oxidative stress and inflammation in diabetic periodontitis. J Formos Med Assoc. 2021 Feb 10:S0929-6646(21)00027-9. doi: 10.1016/j.jfma.2021.01.010. Epub ahead of print. PMID: 33581965.
2. Peng CY, Yu CC, Huang CC, Liao YW, Hsieh PL, Chu PM, Yu CH, Lin SS. Magnolol inhibits cancer stemness and IL-6/Stat3 signaling in oral carcinomas. J Formos Med Assoc. 2021 Feb 4:S0929-6646(21)00026-7. doi: 10.1016/j.jfma.2021.01.009. Epub ahead of print. PMID: 33551310.

In vivo study

Product data sheet

1. Guo JW, Cheng YP, Liu CY, Thong HY, Lo Y, Wu CY, Jee SH. Magnolol may contribute to barrier function improvement on imiquimod-induced psoriasis-like dermatitis animal model via the downregulation of interleukin-23. Exp Ther Med. 2021 May;21(5):448. doi: 10.3892/etm.2021.9876. Epub 2021 Mar 1. PMID: 33747183; PMCID: PMC7967813.
2. Chen S, Shen J, Zhao J, Wang J, Shan T, Li J, Xu M, Chen X, Liu Y, Cao G. Magnolol Suppresses Pancreatic Cancer Development In Vivo and In Vitro via Negatively Regulating TGF-β/Smad Signaling. Front Oncol. 2020 Dec 2;10:597672. doi: 10.3389/fonc.2020.597672. PMID: 33344246; PMCID: PMC7738609.

7. Bioactivity

Biological target:

Magnolol is a dual agonist of both RXRα and PPARγ, with EC50 values of 10.4 μM and 17.7 μM, respectively.

In vitro activity

First, the stimulation of HGFs (human gingival fibroblasts) with AGE (Advanced Glycation End Product) (500 μg/mL) markedly induced the production of ROS, while administration of various concentrations (0–10 μM) of Magnolol dose-dependently downregulated the generation of ROS (Fig. 1). This finding indicated that Magnolol possessed the anti-oxidant capacity. To explore how Magnolol regulated the AGE-induced oxidative stress, the expression of Nrf2 and HO-1 was assessed in order to ascertain Magnolol was able to modulate this antioxidant pathway. As expected, AGEs suppressed the expression of both Nrf2 and HO-1 (Fig. 4), which was consistent with the abovementioned observation of a higher ROS production in the AGE-treated HGFs. Magnolol increased the expression Nrf2/HO-1 axis in a dose-dependent fashion (Fig. 4), suggesting Magnolol may mitigate the generation of ROS through activation of Nrf2/HO-1 signaling.

Reference: J Formos Med Assoc. 2021 Feb 10:S0929-6646(21)00027-9. https://pubmed.ncbi.nlm.nih.gov/33581965/

In vivo activity

The potential underlying mechanisms of magnolol treatment in psoriasis-like skin were examined using the inflammatory cytokine panel. The cytokine array results revealed that the expression of all the cytokines were significantly increased in the mouse control group (IMQ (imiquimod)-induced only) compared with the normal group (untreated skin specimens, $P<0.05$). High-dose administration of magnolol led to the inhibition of IL-23, IL-1β, IL-6, TNF-α and INF-γ protein expression (all $P<0.05$), although not of IL-17A ($P>0.05$), compared with the control group. Low-dose administration of magnolol led to the inhibition of IL-23, IL-1β, IL-6 and INF-γ protein expression (all $P<0.05$) although not of IL-17A and TNF-α (both $P>0.05$), compared with the control group. Both high and low administration of magnolol led to the inhibition of IL-1β compared with the EtOH group (both $P<0.05$).

Reference: Exp Ther Med. 2021 May; 21(5): 448. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7967813/

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.