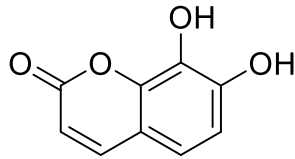


Product data sheet



MedKoo Cat#: 584586 Name: Daphnetin CAS#: 486-35-1 Chemical Formula: C ₉ H ₆ O ₄ Exact Mass: 178.0266 Molecular Weight: 178.143		
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:

Daphnetin is a coumarin derivative that has been isolated from plants of the genus *Daphne* and has diverse biological activities, including kinase inhibitory, anti-proliferative, and antioxidative properties.

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	43.0	241.38

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	5.61 mL	28.07 mL	56.13 mL
5 mM	1.12 mL	5.61 mL	11.23 mL
10 mM	0.56 mL	2.81 mL	5.61 mL
50 mM	0.11 mL	0.56 mL	1.12 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. Wang Y, Li CF, Pan LM, Gao ZL. 7,8-Dihydroxycoumarin inhibits A549 human lung adenocarcinoma cell proliferation by inducing apoptosis via suppression of Akt/NF-κB signaling. *Exp Ther Med.* 2013 Jun;5(6):1770-1774. doi: 10.3892/etm.2013.1054. Epub 2013 Apr 9. PMID: 23837071; PMCID: PMC3702713.
2. Xu K, Guo L, Bu H, Wang H. Daphnetin inhibits high glucose-induced extracellular matrix accumulation, oxidative stress and inflammation in human glomerular mesangial cells. *J Pharmacol Sci.* 2019 Feb;139(2):91-97. doi: 10.1016/j.jphs.2018.11.013. Epub 2018 Dec 7. PMID: 30595336.

In vivo study

1. Du J, Zhao Q, Zhang Y, Wang Y, Ma M. 7, 8-dihydroxycoumarin improves neurological function in a mouse model of sciatic nerve injury. *Neural Regen Res.* 2012 Feb 25;7(6):445-50. doi: 10.3969/j.issn.1673-5374.2012.06.007. PMID: 25774187; PMCID: PMC4350131.
2. Li M, Shi X, Chen F, Hao F. Daphnetin inhibits inflammation in the NZB/W F1 systemic lupus erythematosus murine model via inhibition of NF-κB activity. *Exp Ther Med.* 2017 Feb;13(2):455-460. doi: 10.3892/etm.2016.3971. Epub 2016 Dec 13. PMID: 28352315; PMCID: PMC5348691.

Product data sheet



7. Bioactivity

Biological target:

Daphnetin (7,8-dihydroxycoumarin), one coumarin derivative isolated from plants of the Genus Daphne, is a protein kinase inhibitor, with IC50s of 7.67 μ M, 9.33 μ M and 25.01 μ M for EGFR, PKA and PKC in vitro, respectively.

In vitro activity

The aim of the present study was to explore the function of daphnetin in DN (diabetic nephropathy) and the underlying mechanism in vitro. Daphnetin alleviated cell proliferation induced by high glucose (HG) in human mesangial cells (MCs). Daphnetin strikingly reduced reactive oxygen species (ROS) and malonaldehyde (MDA) levels, and induced the superoxide dismutase (SOD) activity in HG-stimulated MCs. Besides, the production of TNF- α , IL-1 β , IL-6, fibronectin (FN) and collagen IV (Col IV) was also inhibited by daphnetin in HG-stimulated MCs. In addition, daphnetin enhanced the expression of nuclear factor-erythroid 2-related factor 2 (Nrf2) and inhibited the levels of p-Akt and p-p65 in HG-stimulated MCs. The results indicated that daphnetin inhibited HG-induced oxidative stress, inflammatory response, and ECM accumulation in human MCs. The effect is partially mediated by Nrf2/keap1 and Akt/NF- κ B pathways. The findings suggested that daphnetin might be a therapeutic or preventive agent for DN.

Reference: J Pharmacol Sci. 2019 Feb;139(2):91-97. <https://pubmed.ncbi.nlm.nih.gov/30595336/>

In vivo activity

The present study aimed to investigate the potential therapeutic effect of daphnetin on inflammation in the NZB/W F1 systemic lupus erythematosus (SLE) murine model. Female NZB/WF1 mice (age, 16-18 weeks) were intraperitoneally injected with daphnetin once a day for 12 weeks. The survival rate of the NZB/WF1 mice in the SLE group was lower than that of the BALB/c mice in the control group (Fig. 2). Of note, daphnetin treatment clearly increased the survival of NZB/WF1 mice with SLE (Fig. 2). Daphnetin treatment significantly reduced BUN levels and therefore renal damage in NZB/WF1 mice. ZB/WF1 mice in the SLE group had significantly higher serum levels of TNF- α and IL-6 than the BALB/c mice in the control group (Fig. 5). Furthermore, daphnetin significantly reduced the serum levels of TNF- α and IL-6 in NZB/WF1 mice as compared with those in the SLE group (Fig. 5). Furthermore, daphnetin significantly reduced the SLE-induced NFAT protein expression in NZB/WF1 mice. In conclusion, daphnetin inhibited inflammation in the NZB/W F1 murine SLE model via inhibition of NF- κ B mediated by upregulation of A20.

Reference: Exp Ther Med. 2017 Feb;13(2):455-460. <https://pubmed.ncbi.nlm.nih.gov/28352315/>

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.