

Product data sheet



MedKoo Cat#: 540142 Name: Formononetin CAS#: 485-72-3 Chemical Formula: C ₁₆ H ₁₂ O ₄ Exact Mass: 268.0736 Molecular Weight: 268.26	
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:

Formononetin is found in Fabaceae (soy). It displays a wide variety of biological activities, including decreasing expression of pro-inflammatory cytokines, inducing apoptosis in prostate cancer cells, lowering systolic blood pressure and inhibiting attachment and motility of Giardia.

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	38.0	141.65
DMF	30.0	111.83
DMF:PBS (pH 7.2) (1:1)	0.5	1.86

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.73 mL	18.64 mL	37.28 mL
5 mM	0.75 mL	3.73 mL	7.46 mL
10 mM	0.37 mL	1.86 mL	3.73 mL
50 mM	0.07 mL	0.37 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

- Zhang B, Hao Z, Zhou W, Zhang S, Sun M, Li H, Hou N, Jing C, Zhao M. Formononetin protects against ox-LDL-induced endothelial dysfunction by activating PPAR- γ signaling based on network pharmacology and experimental validation. *Bioengineered*. 2021 Dec;12(1):4887-4898. doi: 10.1080/21655979.2021.1959493. PMID: 34369277.
- Wu J, Xu W, Ma L, Sheng J, Ye M, Chen H, Zhang Y, Wang B, Liao M, Meng T, Zhou Y, Chen H. Formononetin relieves the facilitating effect of lncRNA AFAP1-AS1-miR-195/miR-545 axis on progression and chemo-resistance of triple-negative breast cancer. *Aging (Albany NY)*. 2021 Jul 21;13(14):18191-18222. doi: 10.18632/aging.203156. Epub 2021 Jul 21. PMID: 34289449; PMCID: PMC8351708.

In vivo study

- Liu G, Zhao W, Bai J, Cui J, Liang H, Lu B. Formononetin protects against concanavalin-A-induced autoimmune hepatitis in mice through its anti-apoptotic and anti-inflammatory properties. *Biochem Cell Biol*. 2021 Apr;99(2):231-240. doi: 10.1139/bcb-2020-0197. Epub 2021 Mar 22. PMID: 33749318.

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2. Li T, Zhang S, Chen F, Hu J, Yuan S, Li C, Wang X, Zhang W, Tang R. Formononetin ameliorates the drug resistance of Taxol resistant triple negative breast cancer by inhibiting autophagy. Am J Transl Res. 2021 Feb 15;13(2):497-514. PMID: 33594306; PMCID: PMC7868832.

7. Bioactivity

Biological target:

Formononetin (Formononetol; Flavosil) is a bioactive component extracted from the red clover; inhibits the proliferation of DU-145/PC-3 cells in a dose-dependent manner.

In vitro activity

Functionally, FMNT (formononetin) could protect against ox-LDL-induced inflammatory reaction, oxidative stress, and apoptosis in HUVECs. Moreover, FMNT attenuated ox-LDL-mediated inactivation of PPAR- γ signaling.

Reference: Bioengineered. 2021 Dec;12(1):4887-4898. <https://pubmed.ncbi.nlm.nih.gov/34369277/>

In vivo activity

The results show that FMN (formononetin) alleviated ConA-induced liver injury of mice in a dose-dependent manner. Moreover, pretreatment with FMN inhibited the apoptosis of hepatocytes in the ConA-treated mice through downregulating the expression of pro-apoptotic proteins (Bax, cleaved caspase 9, and cleaved caspase 3) and upregulating the expression of anti-apoptotic protein (Bcl-2). It was also found that the levels of proinflammatory cytokines were greatly reduced in the serum and liver tissues of mice pretreated with FMN.

Reference: Biochem Cell Biol. 2021 Apr;99(2):231-240. <https://pubmed.ncbi.nlm.nih.gov/33749318/>

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.