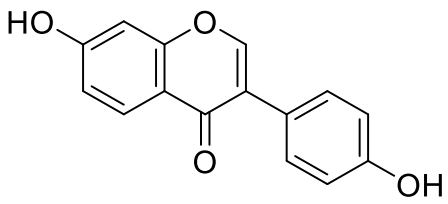
Product data sheet

MedKoo Cat#: 562482 Name: Daidzein CAS#: 486-66-8 Chemical Formula: $C_{15}H_{10}O_4$ Exact Mass: 254.0579 Molecular Weight: 254.241	
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:
Daidzein is an anticancer agent. It acts by preventing hormone-induced cancers and arresting cell cycle at G1.

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	39.0	153.40

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.93 mL	19.67 mL	39.33 mL
5 mM	0.79 mL	3.93 mL	7.87 mL
10 mM	0.39 mL	1.97 mL	3.93 mL
50 mM	0.08 mL	0.39 mL	0.79 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. Guo JM, Xiao BX, Dai DJ, Liu Q, Ma HH. Effects of daidzein on estrogen-receptor-positive and negative pancreatic cancer cells in vitro. World J Gastroenterol. 2004 Mar 15;10(6):860-3. doi: 10.3748/wjg.v10.i6.860. PMID: 15040033; PMCID: PMC4726994.
2. Chu H, Li J, Liu T, Miao N, Zhang W. Anticancer effects of Daidzein against the human melanoma cell lines involves cell cycle arrest, autophagy and deactivation of PI3K/AKT signalling pathways. J BUON. 2020 Jan-Feb;25(1):485-490. PMID: 32277673.

In vivo study

1. Kim E, Woo MS, Qin L, Ma T, Beltran CD, Bao Y, Bailey JA, Corbett D, Ratan RR, Lahiri DK, Cho S. Daidzein Augments Cholesterol Homeostasis via ApoE to Promote Functional Recovery in Chronic Stroke. J Neurosci. 2015 Nov 11;35(45):15113-26. doi: 10.1523/JNEUROSCI.2890-15.2015. PMID: 26558782; PMCID: PMC4642242.
2. Heo HJ, Suh YM, Kim MJ, Choi SJ, Mun NS, Kim HK, Kim E, Kim CJ, Cho HY, Kim YJ, Shin DH. Daidzein activates choline acetyltransferase from MC-IXC cells and improves drug-induced amnesia. Biosci Biotechnol Biochem. 2006 Jan;70(1):107-11. doi: 10.1271/bbb.70.107. PMID: 16428827.

7. Bioactivity
Biological target:
Daidzein is a soy isoflavone, which acts as a PPAR activator.

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In vitro activity

This study was undertaken to investigate the anticancer effects of Daidzein on human melanoma cells and also an attempt was made to decipher the underlying mechanisms. The results of MTT assay showed that Daidzein causes significant decrease in the proliferation of the melanoma A-375 cells and showed an IC50 of 18 μM. However, the IC50 of Daidzein was very high against the normal HEMn-LP cells, indicative of low cytotoxicity. Flow cytometry showed significant arrest of the A-375 cells at the G0/G1 phase of the cell cycle. Western blot analysis showed that the molecule suppressed the expression cell cycle regulatory proteins such as cyclin D1, CDK4, CDK6 and p27. DAPI and annexin V/PI staining assays showed that Daidzein prompted apoptosis in A-375 melanoma cells which was concomitant with depletion of Bcl-2, increase of Bax and activation of cleavage of caspase-3 and caspase-9. Electron microscopic analysis showed that the molecule led to the development of autophagosomes in A-375 cells, which was also concomitant with increase in the expression of LC3B II and decrease in the expression of p62. Finally, Daidzein also suppressed the phosphorylation of PI3K and AKT, causing deactivation of the PI3K/AKT signalling pathway. In conclusion, daidzein may prove beneficial in the development of melanoma systemic therapy.

Reference: BUON. Jan-Feb 2020;25(1):485-490. https://pubmed.ncbi.nlm.nih.gov/32277673/

In vivo activity

A possibility of daidzein-induced long-term neuroprotection was assessed in mice treated with daidzein for 1 month. Ratios of stroke-induced mRNA levels against the contralateral hemisphere showed similar increases in Lxr, Scarb1, Abca1, Apoe, Tsp2, and Gfap mRNA in both vehicle and daidzein-treated groups (Fig. 4A; Table 2). Compared with vehicle treatment, daidzein significantly elevated Abca1, Abcg1, and Apoe mRNAs at 1 month after stroke (Fig. 4B–E). For lipogenic genes, daidzein increased stroke-induced Srebp1 mRNA without affecting Fas and Lpl expression (Table 2). ApoE protein was also significantly increased at this time (Fig. 4F). There was no difference in expression of the cholesterol homeostasis genes in age-matched sham mice treated with vehicle or daidzein for 1 month (data not shown). Because stroke causes atrophy, brain volume representing noninjured tissue, ischemic scar tissue, remaining total ipsilateral tissue, and resorbed tissue (estimated infarct) were analyzed. No differences were found in any of these region volumes (Fig. 4G), confirming that daidzein-induced cholesterol homeostasis genetic program uncouples with neuroprotection.

Reference: J Neurosci. 2015 Nov 11; 35(45): 15113–15126. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4642242/

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.