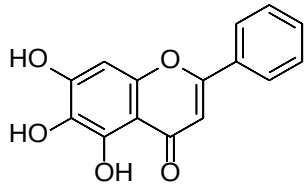
Product data sheet

MedKoo Cat#: 561385 Name: Baicalein CAS#: 491-67-8 Chemical Formula: $C_{15}H_{10}O_5$ Exact Mass: 270.0528 Molecular Weight: 270.24	
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:
Baicalein is a positive allosteric modulator of the benzodiazepine site and/or a non-benzodiazepine site of the GABAA receptor. It displays subtype selectivity for α2 and α3 subunit-containing GABAA receptors. Baicalein is also an antagonist of the estrogen receptor.

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	52.0	192.42
DMSO	48.88	180.88
Ethanol	1.15	4.26

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.70 mL	18.50 mL	37.00 mL
5 mM	0.74 mL	3.70 mL	7.40 mL
10 mM	0.37 mL	1.85 mL	3.70 mL
50 mM	0.07 mL	0.37 mL	0.74 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. Yan W, Ma X, Zhao X, Zhang S. Baicalein induces apoptosis and autophagy of breast cancer cells via inhibiting PI3K/AKT pathway in vivo and vitro. Drug Des Devel Ther. 2018 Nov 16;12:3961-3972. doi: 10.2147/DDDT.S181939. PMID: 30510404; PMCID: PMC6248272.
2. Guo J, You H, Li D. Baicalein Exerts Anticancer Effect in Nasopharyngeal Carcinoma In Vitro and In Vivo. Oncol Res. 2019 May 7;27(5):601-611. doi: 10.3727/096504018X15399945637736. PMID: 31053182; PMCID: PMC7848276.

In vivo study

1. Yan W, Ma X, Zhao X, Zhang S. Baicalein induces apoptosis and autophagy of breast cancer cells via inhibiting PI3K/AKT pathway in vivo and vitro. Drug Des Devel Ther. 2018 Nov 16;12:3961-3972. doi: 10.2147/DDDT.S181939. PMID: 30510404; PMCID: PMC6248272.
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7. Bioactivity

Product data sheet

Biological target: Baicalein is a xanthine oxidase inhibitor with an IC50 of 3.12 μM.

In vitro activity

To measure the effect of baicalein on the proliferation of MCF-7 and MDA-MB-231 cells that were exposed to 0, 10, 20, and 40 μM of baicalein for 24, 48, and 72 hours, MTT assay was implemented. The results showed that baicalein significantly inhibited the proliferation of MCF-7 and MDA-MB-231 cells in a dose- and time-dependent manner ($P<0.05$, $P<0.01$, Figure 1B). Baicalein also suppressed the colony formation of MCF-7 and MDA-MB-231 cells as shown by the plate colony formation assay. As shown in Figure 1C, the numbers of colonies that formed for preparations treated with baicalein at 10, 20, and 40 μM were 118±2.6, 63±6.2, 25±3.7 and 85±1.6, 51±6.7, 19±3.6 in MCF-7 and MDA-MB-231 cells respectively ($P<0.05$). These results suggest that baicalein has anti-proliferative effects on breast cancer cells.

Reference: Drug Des Devel Ther. 2018 Nov 16;12:3961-3972. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6248272/

In vivo activity

The anticancer potential of baicalein was evaluated using breast xenografts models (BALB/c-nude) as the testing model. After therapeutic treatment with baicalein, tumor tissues from breast xenograft models were collected and analyzed. The results demonstrated that the growth, volume, and weight of tumors were significantly suppressed in the baicalein-treated group compared with the control group (Figure 5A–C, $P<0.05$). Additionally, the anti-tumor efficacy of baicalein in vivo was assessed by immunohistochemistry staining methods. As presented in Figure 5D, baicalein remarkably reduced the expression of p-AKT, while increasing the expression of Bax and LC3 at the protein level. These results illustrated that baicalein can significantly induce apoptosis and autophagy through negative modulation of the PI3K/AKT pathway in vivo.

Reference: Drug Des Devel Ther. 2018 Nov 16;12:3961-3972. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6248272/