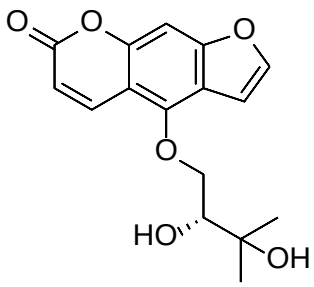
Product data sheet

MedKoo Cat#: 464674 Name: Prangol CAS: 2643-85-8 Chemical Formula: $C_{16}H_{16}O_6$ Exact Mass: 304.0947 Molecular Weight: 304.298	
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:

Prangol is a furanocoumarin that has been found in A. japonica and has diverse biological activities. It is active against the Gram-positive bacteria B. cereus, S. aureus, and S. faecalis (MICs = 9.76-78.12 µg/ml), the Gram-negative bacteria E. coli, S. dysenteriae, P. aeruginosa, K. pneumoniae, and S. typhi (MICs = 39.06-625 µg/ml), and the fungi C. albicans and M. audouinii (MIC = 39.06 µg/ml for both). Prangol inhibits proliferation of human MK-1 gastric and HeLa cervical cancer cells, as well as murine B16/F10 melanoma cells (EC50s = 47.2, 80.3, and 42 µg/ml, respectively). It also inhibits proliferation of sensitive and multidrug-resistant murine L5178Y lymphoma cells (IC50s = 41.96 and 60.58 µM, respectively).

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	30.0	98.59
DMSO	65.0	213.61
DMSO:PBS (pH 7.2) (1:2)	0.33	1.08
Ethanol	5.0	16.43

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.29 mL	16.43 mL	32.86 mL
5 mM	0.66 mL	3.29 mL	6.57 mL
10 mM	0.33 mL	1.64 mL	3.29 mL
50 mM	0.07 mL	0.33 mL	0.66 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. Zhang K, Li Y, Fu Y, Cui T, Wang Q, Mao X, Peng Y, Zheng J. Oxypeucedanin is a Mechanism-based Inactivator of CYP2B6 and CYP2D6. Curr Drug Metab. 2021;22(11):882-892. doi: 10.2174/1389200222666210629114830. PMID: 34191696.
2. Park SH, Hong JY, Park HJ, Lee SK. The Antiproliferative Activity of Oxypeucedanin via Induction of G2/M Phase Cell Cycle Arrest and p53-Dependent MDM2/p21 Expression in Human Hepatoma Cells. Molecules. 2020 Jan 23;25(3):501. doi: 10.3390/molecules25030501. PMID: 31979361; PMCID: PMC7037124.

In vivo study

Product data sheet

1. Du L, Zhang J, Zhang X, Li C, Wang Q, Meng G, Kan X, Zhang J, Jia Y. Oxypeucedanin relieves LPS-induced acute lung injury by inhibiting the inflammation and maintaining the integrity of the lung air-blood barrier. Aging (Albany NY). 2022 Aug 18;14(16):6626-6641. doi: 10.18632/aging.204235. Epub 2022 Aug 18. PMID: 35985771; PMCID: PMC9467393.

7. Bioactivity

Biological target:

Oxypeucedanin hydrate ((+)-Oxypeucedanin hydrate) is a natural product isolated from D. anethifolia. Prangol exhibits mild toxicity on fibroblasts and parental lymphoma cells.

In vitro activity

Microsomal incubation with oxypeucedanin induced a time-, concentration-, and NADPH-dependent inhibition of CYPs2B6 and 2D6 with kinetic values of K_I/k_{inact} 1.82 μM/0.07 min^{-1} (CYP2B6) and 8.47 μM/0.044 min^{-1} (CYP2D6), respectively. Ticlopidine and quinidine attenuated the observed time-dependent enzyme inhibitions. An epoxide and/or γ-ketoenal intermediate(s) derived from oxypeucedanin was/were trapped in microsomal incubations. CYP3A4 was the primary enzyme involved in the bioactivation of oxypeucedanin.

Reference: Curr Drug Metab. 2021;22(11):882-892. https://pubmed.ncbi.nlm.nih.gov/34191696/

In vivo activity

Using myeloperoxidase activity measurement, ELISA, qRT-PCR, and Western blotting, this study found that oxypeucedanin modulated the activity of myeloperoxidase and decreased the expression levels of inflammatory mediators such as TNF-α, IL-6, IL-1β, MPO, COX-2 and iNOS in LPS-induced inflammation models. Meanwhile, oxypeucedanin inhibited the activation of PI3K/AKT and its downstream NF-κB and MAPK signaling pathways. In addition, oxypeucedanin significantly decreased the pulmonary vascular permeability, which was induced by LPSs, and the enhanced expression of tight junction proteins (Occludin and Claudin 3).

Reference: Aging (Albany NY). 2022 Aug 18;14(16):6626-6641. https://pubmed.ncbi.nlm.nih.gov/35985771/