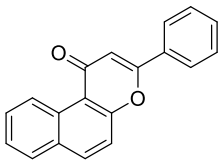
Product data sheet

MedKoo Cat#: 540310 Name: beta-Naphthoflavone CAS#: 6051-87-2 Chemical Formula: $C_{19}H_{12}O_2$ Exact Mass: 272.0837 Molecular Weight: 272.3	
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:
beta-Naphthoflavone is a AhR agonist and antioxidant. It inhibits cigarette smoked-induced DNA damage and tumor development and induces cell cycle arrest in breast cancer cells.

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
Chloroform	10.0	36.72

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.67 mL	18.36 mL	36.72 mL
5 mM	0.73 mL	3.67 mL	7.34 mL
10 mM	0.37 mL	1.84 mL	3.67 mL
50 mM	0.07 mL	0.37 mL	0.73 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. Ishida T, Takechi S. β-Naphthoflavone, an exogenous ligand of aryl hydrocarbon receptor, disrupts zinc homeostasis in human hepatoma HepG2 cells. J Toxicol Sci. 2019;44(10):711-720. doi: 10.2131/jts.44.711. PMID: 31588062.
2. Brauze D, Zawierucha P, Kiwerska K, Bednarek K, Oleszak M, Rydzanicz M, Jarmuz-Szymczak M. Induction of expression of aryl hydrocarbon receptor-dependent genes in human HepaRG cell line modified by shRNA and treated with β-naphthoflavone. Mol Cell Biochem. 2017 Jan;425(1-2):59-75. doi: 10.1007/s11010-016-2862-3. Epub 2016 Oct 28. PMID: 27796684; PMCID: PMC5225230.

In vivo study

1. Zhou X, Li D, Xu W, Zhang H, Wang H, Perdew GH. β-Naphthoflavone Activation of the Ah Receptor Alleviates Irradiation-Induced Intestinal Injury in Mice. Antioxidants (Basel). 2020 Dec 12;9(12):1264. doi: 10.3390/antiox9121264. PMID: 33322705; PMCID: PMC7763649.
2. Furukawa S, Tsuji N, Hayashi S, Kuroda Y, Kimura M, Hayakawa C, Takeuchi K, Sugiyama A. The effects of β-naphthoflavone on rat placental development. J Toxicol Pathol. 2019 Oct;32(4):275-282. doi: 10.1293/tox.2019-0047. Epub 2019 Aug 20. PMID: 31719754; PMCID: PMC6831496.

7. Bioactivity
Biological target:

An AhR agonist.

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In vitro activity

This study showed that β-naphthoflavone induces a decrease in the level of intracellular labile zinc. This study also observed a tendency for β-naphthoflavone (10 μM) to induce a decrease of intracellular total zinc levels, and an alteration of intracellular labile zinc distribution with an increase of the number of vesicles incorporating intracellular labile zinc.

Reference: J Toxicol Sci. 2019;44(10):711-720. https://pubmed.ncbi.nlm.nih.gov/31588062/

In vivo activity

The survival rate of vehicle treated mice was 33.33% at day 30 (Figure 6a), while the BNF (beta-Naphthoflavone) treated mice showed a higher survival rate of 40.0% (25 mg/kg/day), 70.0% (75 mg/kg/day), and 60.0% (100 mg/kg), compared to the control irradiated group. The median survival of the vehicle treated group was 14 days after exposure to lethal dose radiation, while the BNF (25 mg/kg) treated group median survival was 18.5 days. In contrast, the preventive treatment with BNF for seven days, followed by an additional administration for five days did not provide a benefit to the mice in terms of increased survival from lethal irradiation exposure, considering that the median survival was similar between the vehicle and BNF-treated mice (Figure 6b). Hence, BNF treatment prior to irradiation exhibited a protective effect for mice exposed to lethal dose irradiation, prolonging median survival. However, the observed decrease in body weight loss in the presence of BNF treatment was not significantly different from the vehicle treated mice (Figure S4).

Reference: Antioxidants (Basel). 2020 Dec; 9(12): 1264. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7763649/