

Product data sheet



MedKoo Cat#: 596549 Name: Nuciferine CAS: 475-83-2 Chemical Formula: C ₁₉ H ₂₁ NO ₂ Exact Mass: 295.1572 Molecular Weight: 295.382		
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:

Nuciferine is a CNS depressant; glutamic acid antagonist. Nuciferin is an drug candidate for the treatment of obesity-related diseases. It is not well studied and its pharmacokinetics in vivo have not been fully investigated.

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	1.0	3.39
DMSO	3.5	11.85
Ethanol	1.0	3.39
Ethanol:PBS (pH 7.2) (1:3)	0.25	0.85

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.39 mL	16.93 mL	33.85 mL
5 mM	0.68 mL	3.39 mL	6.77 mL
10 mM	0.34 mL	1.69 mL	3.39 mL
50 mM	0.07 mL	0.34 mL	0.68 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. Kulhari U, Kundu S, Mugale MN, Sahu BD. Nuciferine alleviates intestinal inflammation by inhibiting MAPK/NF-κB and NLRP3/Caspase 1 pathways in vivo and in vitro. *Int Immunopharmacol.* 2023 Feb;115:109613. doi: 10.1016/j.intimp.2022.109613. Epub 2022 Dec 26. PMID: 36577154.
2. Charoensin S, Weera W. Preventive Effect of Nuciferine on H₂O₂-Induced Fibroblast Senescence and Pro-Inflammatory Cytokine Gene Expression. *Molecules.* 2022 Nov 23;27(23):8148. doi: 10.3390/molecules27238148. PMID: 36500241; PMCID: PMC9741010.

In vivo study

1. Li R, Qin X, Yue L, Liu W, Gao Y, Zhu F, Wang D, Zhou Q. Nuciferine improves cardiac function in mice subjected to myocardial ischemia/reperfusion injury by upregulating PPAR-γ. *Heliyon.* 2023 Feb 11;9(2):e13630. doi: 10.1016/j.heliyon.2023.e13630. PMID: 36865453; PMCID: PMC9970911.
2. Xiao M, Xian C, Wang Y, Qi X, Zhang R, Liu Z, Cheng Y. Nuciferine attenuates atherosclerosis by regulating the proliferation and migration of VSMCs through the Calm4/MMP12/AKT pathway in ApoE(-/-) mice fed with High-Fat-Diet. *Phytomedicine.* 2023 Jan;108:154536. doi: 10.1016/j.phymed.2022.154536. Epub 2022 Nov 9. PMID: 36395561.

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7. Bioactivity

Biological target:

Nuciferine is an antagonist at 5-HT_{2A} (IC₅₀=478 nM), 5-HT_{2C} (IC₅₀=131 nM), and 5-HT_{2B} (IC₅₀=1 μM), an inverse agonist at 5-HT₇ (IC₅₀=150 nM), a partial agonist at D₂ (EC₅₀=64 nM), D₅ (EC₅₀=2.6 μM) and 5-HT₆ (EC₅₀=700 nM), an agonist at 5-HT_{1A} (EC₅₀=3.2 μM) and D₄ (EC₅₀=2 μM) receptor.

In vitro activity

In RAW 264.7 cells, NCF (nuciferine) pretreatment significantly decreased the expression of inducible nitric oxide synthase (iNOS), the expression and release of pro-inflammatory cytokines including interleukin (IL)-1β, IL-18, and tumor necrosis factor-α (TNF-α) and interfered with the activation of mitogen-activated protein kinase (MAPK), nuclear factor-κB (NF-κB), and NOD-like family pyrin domain containing 3 (NLRP3) signaling pathways.

Reference: Int Immunopharmacol. 2023 Feb;115:109613. <https://pubmed.ncbi.nlm.nih.gov/36577154/>

In vivo activity

This study found that nuciferine could reduce the myocardial infarct size in a mouse myocardial ischemia-reperfusion model and improve cardiac function. Furthermore, nuciferine could effectively inhibit hypoxia and reoxygenation (H/R) stimulated apoptosis of primary mouse cardiomyocytes. In addition, nuciferine significantly reduced the level of oxidative stress.

Reference: Heliyon. 2023 Feb 11;9(2):e13630. <https://pubmed.ncbi.nlm.nih.gov/36865453/>

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.