# **Product data sheet**



MedKoo Cat#: 540156			
Name: Gentiopicrin			
CAS#: 20831-76-9			
Chemical Formula: $C_{16}H_{20}O_9$			
Exact Mass: 356.1107			`O
Molecular Weight: 356.327			Ĭ
Product supplied as:	Powder		
Purity (by HPLC):	$\geq 98\%$		
Shipping conditions	Ambient temperature		
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.	7 //	
-	In solvent: -80°C 3 months; -20°C 2 weeks.		

### 1. Product description:

Gentiopicrin is found in gentiana and cephalaria. It displays many biological properties, including suppressing expression of NMDA receptors in the anterior cingulate cortex, inhibiting morphine conditioned place preference, and preventing arachidonic acid and PMA-induced superoxide generation.

## 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	50.0	140.32
DMSO	73.67	206.74
Ethanol	2.0	5.61
PBS (pH 7.2)	10.0	28.06
Water	100.0	280.64

### 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.81 mL	14.03 mL	28.06 mL
5 mM	0.56 mL	2.81 mL	5.61 mL
10 mM	0.28 mL	1.40 mL	2.81 mL
50 mM	0.06 mL	0.28 mL	0.56 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. Xu Z, Zhang M, Wang Y, Chen R, Xu S, Sun X, Yang Y, Lin Z, Wang S, Huang H. Gentiopicroside Ameliorates Diabetic Renal Tubulointerstitial Fibrosis via Inhibiting the AT1R/CK2/NF-κB Pathway. Front Pharmacol. 2022 Jun 23;13:848915. doi: 10.3389/fphar.2022.848915. PMID: 35814242; PMCID: PMC9260113.

2. Xiao H, Sun X, Lin Z, Yang Y, Zhang M, Xu Z, Liu P, Liu Z, Huang H. Gentiopicroside targets PAQR3 to activate the PI3K/AKT signaling pathway and ameliorate disordered glucose and lipid metabolism. Acta Pharm Sin B. 2022 Jun;12(6):2887-2904. doi: 10.1016/j.apsb.2021.12.023. Epub 2022 Jan 6. PMID: 35755276; PMCID: PMC9214054.

#### In vivo study

1. He M, Hu C, Chen M, Gao Q, Li L, Tian W. Effects of Gentiopicroside on activation of NLRP3 inflammasome in acute gouty arthritis mice induced by MSU. J Nat Med. 2022 Jan;76(1):178-187. doi: 10.1007/s11418-021-01571-5. Epub 2021 Sep 29. PMID: 34586567; PMCID: PMC8732881.

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2. Jiang H, Zhong J, Li W, Dong J, Xian CJ, Shen YK, Yao L, Wu Q, Wang L. Gentiopicroside promotes the osteogenesis of bone mesenchymal stem cells by modulation of  $\beta$ -catenin-BMP2 signalling pathway. J Cell Mol Med. 2021 Dec;25(23):10825-10836. doi: 10.1111/jcmm.16410. Epub 2021 Nov 15. PMID: 34783166; PMCID: PMC8642693.

# 7. Bioactivity

Biological target:

Gentiopicroside inhibits P450 activity, with an IC50 and a Ki of 61  $\mu$ M and 22.8  $\mu$ M for CYP2A6.

In vitro activity

GPS reduced expressions of FN, vimentin, and  $\alpha$ -SMA and promoted the E-cad expression in HG-induced NRK-52E cells (Figures 5A–C). Moreover, the migration ability was decreased after GPS treatment (Figure 5D, Supplementary Figure S1E). The aforementioned results indicated that GPS inhibited the HG-induced EMT process in NRK-52E cells.

Reference: J Nat Med. 2022 Jan;76(1):178-187. https://pubmed.ncbi.nlm.nih.gov/35814242/

In vivo activity

Figure 2a, b showed that GPS (gentiopicrin) and colchicine relieve paw swelling induced by MSU (monosodium urate). Compared with MSU + Veh group, 100 mg/kg and 200 mg/kg GPS groups showed significant inhibition on instep swelling index (Fig. 2c). Next, this study evaluated the effects of GPS on MSU-induced pain. The results showed that the severity of pain induced by MSU achieved its peak at 8 h after stimulus. And 100 mg/kg, 200 mg/kg GPS had analgesic effect on mechanical hyperalgesia, while the 50 mg/kg GPS did not show (Fig. 2d, e). Furthermore, MSU-induced a severe thermal hyperplasia, which was inhibited by the treatment of GPS with 100 mg/kg and 200 mg/kg (Fig. 2f, g).

Reference: J Nat Med. 2022 Jan;76(1):178-187. https://pubmed.ncbi.nlm.nih.gov/34586567/

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.