

# Product data sheet



MedKoo Cat#: 540226 Name: Isatin CAS: 91-56-5 Chemical Formula: C <sub>8</sub> H <sub>5</sub> NO <sub>2</sub> Exact Mass: 147.032 Molecular Weight: 147.133	
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:

Isatin, also called Tribulin, is a MAO-B and guanylate cyclase inhibitor found in *Istaxis*, *Calanthe* and *Courouptia*. It prevents TNBS-induced increases in pro-inflammatory cytokines and protects against colitis-induced injuries. Derivatives may inhibit cancer cell growth.

## 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
DMSO	69.5	472.36
Ethanol	10.0	0.68

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	6.80 mL	33.98 mL	67.97 mL
5 mM	1.36 mL	6.80 mL	13.59 mL
10 mM	0.68 mL	3.40 mL	6.80 mL
50 mM	0.14 mL	0.68 mL	1.36 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

- Cong S, Luo H, Li X, Wang F, Hua Y, Zhang L, Zhang Z, Li N, Hou L. Isatin inhibits SH-SY5Y neuroblastoma cell invasion and metastasis through PTEN signaling. *Int J Clin Exp Pathol*. 2019 Jul 1;12(7):2446-2454. PMID: 31934071; PMCID: PMC6949577.
- Zhang Q, Fu Y, Zhao Y, Cui S, Wang J, Liu F, Yuan Y, Galons H, Yu P, Teng Y. 5-Acetamido-1-(methoxybenzyl) isatin inhibits tumor cell proliferation, migration, and angiogenesis. *RSC Adv*. 2019 Nov 11;9(63):36690-36698. doi: 10.1039/c9ra07002h. PMID: 35539063; PMCID: PMC9075125.

### In vivo study

- Tawfik NG, Mohamed WR, Mahmoud HS, Alqarni MA, Naguib IA, Fahmy AM, Ahmed OM. Isatin Counteracts Diethylnitrosamine/2-Acetylaminofluorene-Induced Hepatocarcinogenesis in Male Wistar Rats by Upregulating Anti-Inflammatory, Antioxidant, and Detoxification Pathways. *Antioxidants (Basel)*. 2022 Apr 1;11(4):699. doi: 10.3390/antiox11040699. PMID: 35453384; PMCID: PMC9027254.
- Medvedev A, Kopylov A, Buneeva O, Kurbatov L, Tikhonova O, Ivanov A, Zgoda V. A Neuroprotective Dose of Isatin Causes Multilevel Changes Involving the Brain Proteome: Prospects for Further Research. *Int J Mol Sci*. 2020 Jun 11;21(11):4187. doi: 10.3390/ijms21114187. PMID: 32545384; PMCID: PMC7313464.

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## 7. Bioactivity

### Biological target:

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Isatin (Indoline-2,3-dione) is a potent inhibitor of monoamine oxidase (MAO) with an  $IC_{50}$  of 3  $\mu$ M. Also binds to central benzodiazepine receptors ( $IC_{50}$  against clonazepam, 123  $\mu$ M). Also acts as an antagonist of both atrial natriuretic peptide stimulated and nitric oxide-stimulated guanylate cyclase activity. Shows effect on the serotonergic system.

### In vitro activity

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Isatin inhibited the invasion and metastasis of NB cells in vitro. The growth inhibitory effects of isatin on SH-SY5Y cells were evaluated with a CCK-8 assay. As shown in Figure 1B, isatin at various concentrations influenced the survival rate of SH-SY5Y cells after treatment for 48/72 h.

Reference: Int J Clin Exp Pathol. 2019 Jul 1;12(7):2446-2454. <https://pubmed.ncbi.nlm.nih.gov/31934071/>

### In vivo activity

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Consistent with reduced oxidative stress and enhanced antioxidant capacity, isatin cotreatment significantly reduced hepatic MDA content and could increase both GSH content and SOD activity compared to rats administered DENA/2-AAF alone (Figure 3).

Reference: Antioxidants (Basel). 2022 Apr 1;11(4):699. <https://pubmed.ncbi.nlm.nih.gov/35453384/>

*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.*