Product data sheet



MedKoo Cat#: 206023				
Name: Indirubin				
CAS: 479-41-4				
Chemical Formula: C ₁₆ H ₁₀ N ₂ O ₂				
Exact Mass: 262.0742				
Molecular Weight: 262.2628				
Product supplied as:	Powder			
Purity (by HPLC):	$\geq 98\%$			
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:

Indirubin is a potent and selective CDK inhibitor. Indirubin is the active ingredient of Danggui Longhui Wan, a mixture of plants that is used in traditional Chinese medicine to treat chronic diseases. Indirubin has been used to treat the symptoms of leukemia. Further biological explorations revealed the ability of indirubin to bind cyclin-dependent kinases and 6-bromoindirubin, extracted from mollusks, to bind glycogen synthase kinase-3. Studies have shown that Indirubin can help keep cancer cells from reproducing in rats. Indirubin also appears to reduce inflammation by inhibiting part of the immune response.

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	3.81
DMSO	19.33	73.72

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.81 mL	19.07 mL	38.13 mL
5 mM	0.76 mL	3.81 mL	7.63 mL
10 mM	0.38 mL	1.91 mL	3.81 mL
50 mM	0.08 mL	0.38 mL	0.76 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

 Li Z, Wang H, Wei J, Han L, Guo Z. Indirubin exerts anticancer effects on human glioma cells by inducing apoptosis and autophagy. AMB Express. 2020 Sep 25;10(1):171. doi: 10.1186/s13568-020-01107-2. PMID: 32975633; PMCID: PMC7519025.
Liu SG, Luo GP, Qu YB, Chen YF. Indirubin inhibits Wnt/β-catenin signal pathway via promoter demethylation of WIF-1. BMC Complement Med Ther. 2020 Aug 14;20(1):250. doi: 10.1186/s12906-020-03045-9. PMID: 32795328; PMCID: PMC7427955.

In vivo study

1. Wang Q, Yu J, Hu Y, Chen X, Zhang L, Pan T, Miao K, Mou Y, Xu Y, Xiong W, Wang Y. Indirubin alleviates bleomycin-induced pulmonary fibrosis in mice by suppressing fibroblast to myofibroblast differentiation. Biomed Pharmacother. 2020 Nov;131:110715. doi: 10.1016/j.biopha.2020.110715. Epub 2020 Sep 11. PMID: 32927253.

2. Wei G, Sun H, Liu JL, Dong K, Liu J, Zhang M. Indirubin, a small molecular deriving from connectivity map (CMAP) screening, ameliorates obesity-induced metabolic dysfunction by enhancing brown adipose thermogenesis and white adipose browning. Nutr Metab (Lond). 2020 Mar 16;17:21. doi: 10.1186/s12986-020-00440-4. PMID: 32190098; PMCID: PMC7076951.

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7. Bioactivity

Biological target:

Indirubin (Couroupitine B) is a bis-indole alkaloid and has remarkable anticancer activity against chronic myelocytic leukemia.

In vitro activity

The effects Indirubin of the migration potential of the U87 and U118 glioma cells was assessed by wound heal assay. The results showed that the treatment of U87 and U118 cells with Indirubin for 24 h caused reduction in the migration of these cells as evident from the wound width (Fig. 5).

Reference: AMB Express. 2020 Sep 25;10(1):171. https://pubmed.ncbi.nlm.nih.gov/32975633/

In vivo activity

Consistently, this study also determined the hydroxyproline content in the lung homogenates, a marker correlated with fibrosis severity, and found that indirubin treatment significantly attenuated the levels of hydroxyproline in the lung following BLM injection (Fig. 2F). Furthermore, the survival condition of mice was monitored during the course of 14 days. Interestingly, the survival rate of the bleomycin-treated mice at day 14 was significantly lower than that of the control mice and the indirubin-treated mice (Fig. 2G). Taken together, these results indicate that indirubin effectively alleviates BLM-induced lung injury and fibrosis in mice.

Reference: Biomed Pharmacother. 2020 Nov;131:110715. https://pubmed.ncbi.nlm.nih.gov/32927253/

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.