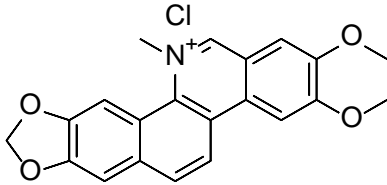


# Product data sheet



MedKoo Cat#: 407364 Name: Nitidine chloride CAS: 13063-04-2 (chloride) Chemical Formula: C <sub>21</sub> H <sub>18</sub> ClNO <sub>4</sub> Molecular Weight: 383.828	
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:

Nitidine is a benzophenanthridine alkaloid found in species of the genus *Zanthoxylum*, notably in *Zanthoxylum nitidum*. This compound has an anti-malarial activity. Nitidine increased CNS tissue sparing and improved functional recovery by attenuating reactive microgliosis, suggestive of the potential therapeutic benefit for CNS injury. Nitidine chloride induces apoptosis and inhibits tumor cell proliferation via suppressing ERK signaling pathway in renal cancer. Nitidine chloride inhibits renal cancer cell metastasis via suppressing AKT signaling pathway. Nitidine chloride inhibits ovarian cancer cell migration and invasion by suppressing MMP-2/9 production via the ERK signaling pathway. Nitidine chloride induces apoptosis, cell cycle arrest, and synergistic cytotoxicity with doxorubicin 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
DMF	0.25	0.65
DMSO	2.5	6.51

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.61 mL	13.03 mL	26.05 mL
5 mM	0.52 mL	2.61 mL	5.21 mL
10 mM	0.26 mL	1.30 mL	2.61 mL
50 mM	0.05 mL	0.26 mL	0.52 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

- Bouquet J, Rivaud M, Chevalley S, Deharo E, Jullian V, Valentin A. Biological activities of nitidine, a potential anti-malarial lead compound. *Malar J.* 2012 Mar 9;11:67. doi: 10.1186/1475-2875-11-67. PMID: 22404785; PMCID: PMC3325168.
- Pan X, Han H, Wang L, Yang L, Li R, Li Z, Liu J, Zhao Q, Qian M, Liu M, Du B. Nitidine Chloride inhibits breast cancer cells migration and invasion by suppressing c-Src/FAK associated signaling pathway. *Cancer Lett.* 2011 Dec 27;313(2):181-91. doi: 10.1016/j.canlet.2011.09.001. Epub 2011 Sep 10. PMID: 21959111.

### In vivo study

- Fang Z, Tang Y, Jiao W, Xing Z, Guo Z, Wang W, Xu Z, Liu Z. Nitidine chloride induces apoptosis and inhibits tumor cell proliferation via suppressing ERK signaling pathway in renal cancer. *Food Chem Toxicol.* 2014 Apr;66:210-6. doi: 10.1016/j.fct.2014.01.049. Epub 2014 Feb 5. PMID: 24508476.

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2. Chen J, Wang J, Lin L, He L, Wu Y, Zhang L, Yi Z, Chen Y, Pang X, Liu M. Inhibition of STAT3 signaling pathway by nitidine chloride suppressed the angiogenesis and growth of human gastric cancer. *Mol Cancer Ther.* 2012 Feb;11(2):277-87. doi: 10.1158/1535-7163.MCT-11-0648. Epub 2011 Dec 27. PMID: 22203730.

## 7. Bioactivity

Biological target:

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Nitidine is an anti-malarial activity.

### In vitro activity

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This study demonstrated that Nitidine Chloride (NC) could inhibit breast cancer cells migration and invasion both in vitro and in vivo. Meanwhile, the protrusion formation and partial proteolytic activity of MMP-9 and MMP-2 were attenuated by NC in a dose-dependent manner in MDA-MB-231 cells. Furthermore, addition NC to cells significantly decreases PDGF induced phosphorylation of c-Src, FAK, MAPKs, activation of RhoA, Rac1 and AP-1 transcriptional activity.

Reference: *Cancer Lett.* 2011 Dec 27;313(2):181-91. <https://pubmed.ncbi.nlm.nih.gov/21959111/>

### In vivo activity

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Nitidine chloride (NC), a natural bioactive alkaloid derived from *Zanthoxylum nitidum* (Roxb) DC, has been shown to have inhibitory effects on various tumors. Consistently, the xenograft model performed in nude mice exhibited reduced tumor growth with NC treatment. Mechanically, this study presented that NC significantly decreased phosphorylation of ERK and Akt, accompanied by up-regulation of P53, Bax, cleavage caspase-3 and cleavage PARP, downregulation of Bcl-2, caspase-3 and PARP.

Reference: *Food Chem Toxicol.* 2014 Apr;66:210-6. <https://pubmed.ncbi.nlm.nih.gov/24508476/>

*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.*