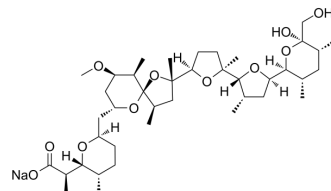


Nigericin sodium salt

Cat. No.:	HY-100381		
CAS No.:	28643-80-3		
Molecular Formula:	C ₄₀ H ₆₇ NaO ₁₁		
Molecular Weight:	746.94		
Target:	Potassium Channel; NOD-like Receptor (NLR); Bacterial; Antibiotic		
Pathway:	Membrane Transporter/Ion Channel; Immunology/Inflammation; Anti-infection		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

Ethanol : ≥ 50 mg/mL (66.94 mM)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	1.3388 mL	6.6940 mL	13.3880 mL
	5 mM	0.2678 mL	1.3388 mL	2.6776 mL
	10 mM	0.1339 mL	0.6694 mL	1.3388 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 6.25 mg/mL (8.37 mM); Clear solution
- Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 6.25 mg/mL (8.37 mM); Clear solution
- Add each solvent one by one: 10% EtOH >> 90% corn oil
Solubility: ≥ 6.25 mg/mL (8.37 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Nigericin sodium salt is an antibiotic from *Streptomyces hygroscopicus* that works by acting as an H⁺, K⁺, and Pb²⁺ ionophore, a NLRP3 activator^[1].

In Vitro

Nigericin (0.1 μM) decreases inhibits proliferation and clonogenicity of H460 lung cancer cells in a dose dependent manner. Nigericin inhibits migration and invasion of H460 lung cancer cells^[1]. Nigericin (0.1-10 nM) has apparently a dual effect on cell volume, that is a shrinking effect at lower Nigericin concentrations and a swelling effect at higher concentrations.

	<p>Nigericin (0.1-1 nM) significantly decreases cytosolic pH (pHi), and slightly increases the pHi at 5 and 10 nM^[2]. Nigericin exhibits higher toxicity on S18 cells than S26 cells, with IC₅₀ of 2.03±0.55 μM and 4.77±2.35 μM, respectively. Nigericin can selectively kill cancer stem cells in NPC in vitro. Nigericin dramatically reduces the migration ability of S18 and HONE-1 cells^[3]. Nigericin exhibits great toxicity for the HT29 and SW116 cell line with IC₅₀ of 12.92±0.25 μmol and 15.86±0.18 μmol. Nigericin also shows a decreased ability to form colonies under anchorage-independent conditions in a standard soft agar assay^[4].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
In Vivo	<p>Nigericin (4 mg/kg, i.p.) significantly reduces tumor growth and acts synergistically with the chemotherapeutic agent DDP, as shown by the tumor volumes. Nigericin markedly decreases Bmi-1 in vivo. Overexpression of Bmi-1 partially restores CSC content and metastatic ability of NPC cells under Nigericin treatment. The downregulation of Bmi-1 may be involved in the inhibitory effect of Nigericin on CSCs in NPC^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

PROTOCOL

Cell Assay ^[1]	<p>For RCCs, cells (appr 2000 cells/well) are plated in 96-well cell-culture microplates and incubated over nigericinht in complete media (CM)-RPMI 1640 supplemented with 5% FBS and 2 mM l-glutamine. Cells are then exposed to the appropriate concentration of drug or vehicle for 72 h. For PPSS, cells (appr 500 cells/well) are plated in 96-well cell-culture microplates incubated over Nigericinht in CM to allow them to adhere and then maintained in serum-free media for 7-8 days and then treated with the appropriate concentration of drug or vehicle for 72 h in SFM. Cell viability for cells growing under RCCs and PPSS are evaluated by the MTT assay. The absorbance of solubilized formazan is read at 570 nm using ELISA (enzyme-linked immunosorbent assay) reader. In all cases, the highest concentration of DMSO is used in the control and this concentration is maintained below 0.001% (v/v). This DMSO concentration does not show any significant antiproliferative effect on the cell line in a short-term assay.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
Animal Administration ^[3]	<p>Mice^[3]</p> <p>The S18 cells are injected near the scapula of the nude mice. Nine days after injection, the mice are randomly divided into four groups with six animals each (control, DDP, Nigericin and DDP combined with Nigericin). DDP (2.5 mg/kg) is injected intraperitoneally for five continuous days and nigericin (4 mg/kg) is administrated intraperitoneally every two days. Tumor length and width are measured with a vernier caliper every other day. Tumor volume is calculated using the formula $V=0.5 \times (\text{length} \times \text{width}^2)$. The body weights of the mice are recorded every two days. Mice are humanely euthanized when the tumor volume reach 2000 mm³.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

CUSTOMER VALIDATION

- Cell Metab. 2020 May 5;31(5):892-908.e11.
- Cell Rep. 2019 May.
- Sensor Actuat B-Chem. 297 (2019) 126801.
- Ther Adv Med Oncol. 2021 Jan 21.
- Cell Death Dis. 2020 Feb 18;11(2):132.

See more customer validations on www.MedChemExpress.com

REFERENCES

-
- [1]. Yakisich JS, et al. Nigericin decreases the viability of multidrug-resistant cancer cells and lung tumorspheres and potentiates the effects of cardiac glycosides. *Tumour Biol.* 2017 Mar;39(3):1010428317694310
- [2]. Bissinger R, et al. Triggering of Suicidal Erythrocyte Death by the Antibiotic Ionophore Nigericin. *Basic Clin Pharmacol Toxicol.* 2016 May;118(5):381-9
- [3]. Deng CC, et al. Nigericin selectively targets cancer stem cells in nasopharyngeal carcinoma. *Int J Biochem Cell Biol.* 2013 Sep;45(9):1997-2006
- [4]. Zhou HM, et al. Suppression of colorectal cancer metastasis by nigericin through inhibition of epithelial-mesenchymal transition. *World J Gastroenterol.* 2012 Jun 7;18(21):2640-8
-

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA