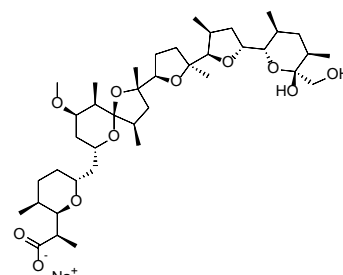


Product data sheet



MedKoo Cat#: 406668 Name: Nigericin sodium CAS: 28643-80-3 (sodium) Chemical Formula: C ₄₀ H ₆₇ NaO ₁₁ Exact Mass: 724.4762 Molecular Weight: 764.9548	
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:

Nigericin is a cationic ionophore that inhibits Golgi function and suppresses growth of gram positive bacteria. It also prevents viral activation and triggers activation of the NALP3 inflammasome. Nigericin acts as an H⁺, K⁺, Pb²⁺ ionophore. Most commonly it is an antiporter of H⁺ and K⁺. In the past nigericin was used as an antibiotic active against gram positive bacteria. It inhibits the Golgi functions in Eukaryotic cells. Its ability to induce K⁺ efflux also makes it a potent activator of the NLRP3 inflammasome.

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	1.2	1.57
DMSO	11.76	15.37
Ethanol	56.67	74.08
Ethanol:PBS (pH 7.2) (1:5)	0.15	0.20

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.34 mL	6.69 mL	13.39 mL
5 mM	0.27 mL	1.34 mL	2.68 mL
10 mM	0.13 mL	0.67 mL	1.34 mL
50 mM	0.03 mL	0.13 mL	0.27 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. Yakisich JS, Azad N, Kaushik V, O'Doherty GA, Iyer AK. 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. doi: 10.1177/1010428317694310. PMID: 28351327.
2. Bissinger R, Malik A, Bouguerra G, Zhou Y, Singh Y, Abbès S, Lang F. Triggering of Suicidal Erythrocyte Death by the Antibiotic Ionophore Nigericin. *Basic Clin Pharmacol Toxicol.* 2016 May;118(5):381-9. doi: 10.1111/bcpt.12503. Epub 2015 Nov 13. PMID: 26458067.

In vivo study

1. Yang Z, Xie J, Fang J, Lv M, Yang M, Deng Z, Xie Y, Cai L. Nigericin exerts anticancer effects through inhibition of the SRC/STAT3/BCL-2 in osteosarcoma. *Biochem Pharmacol.* 2022 Apr;198:114938. doi: 10.1016/j.bcp.2022.114938. Epub 2022 Jan 31. PMID: 35114189.

Product data sheet



2. Stout-Delgado HW, Vaughan SE, Shirali AC, Jaramillo RJ, Harrod KS. Impaired NLRP3 inflammasome function in elderly mice during influenza infection is rescued by treatment with nigericin. *J Immunol.* 2012 Mar 15;188(6):2815-24. doi: 10.4049/jimmunol.1103051. Epub 2012 Feb 10. PMID: 22327078; PMCID: PMC3294083.

7. Bioactivity

Biological target:

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

In vitro activity

Nigericin potently inhibited the viability of cells growing under routine culture conditions, prolonged periods of serum starvation, and lung tumorspheres. In addition, this study found that Nigericin downregulated the expression of key proteins in the Wnt canonical signaling pathway such as LRP6, Wnt5a/b, and β -catenin, but promotes β -catenin translocation into the nucleus.

Reference: *Tumour Biol.* 2017 Mar;39(3):1010428317694310. <https://pubmed.ncbi.nlm.nih.gov/28351327/>

In vivo activity

Treatment with nigericin during influenza infection augmented IL-1 β production, increased caspase-1 activity, and decreased morbidity and mortality in elderly mice. This study demonstrates for the first time, to our knowledge, that during influenza viral infection, elderly mice have impaired NLRP3 inflammasome activity and that treatment with nigericin rescues NLRP3 activation in elderly hosts.

Reference: *J Immunol.* 2012 Mar 15;188(6):2815-24. <https://pubmed.ncbi.nlm.nih.gov/22327078/>

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.