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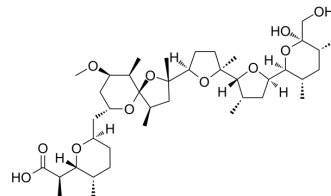
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Nigericin

Cat. No.:	HY-127019
CAS No.:	28380-24-7
Molecular Formula:	C ₄₀ H ₆₈ O ₁₁
Molecular Weight:	724.96
Target:	Sodium Channel; NOD-like Receptor (NLR); Apoptosis; Bacterial; Antibiotic; Pyroptosis; Wnt; β -catenin
Pathway:	Membrane Transporter/Ion Channel; Immunology/Inflammation; Apoptosis; Anti-infection; Stem Cell/Wnt
Storage:	-20°C, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro	Ethanol : ≥ 33.33 mg/mL (45.97 mM) DMSO : < 1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble or slightly soluble) * "≥" means soluble, but saturation unknown.					
	Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg
		1 mM		1.3794 mL	6.8969 mL	13.7939 mL
		5 mM		0.2759 mL	1.3794 mL	2.7588 mL
		10 mM		0.1379 mL	0.6897 mL	1.3794 mL
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (3.45 mM); Clear solution					
	2. Add each solvent one by one: 10% EtOH >> 90% corn oil Solubility: ≥ 2.5 mg/mL (3.45 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	Nigericin is an antibiotic derived from <i>Streptomyces hygroscopicus</i> that act as a K ⁺ /H ⁺ ionophore, promoting K ⁺ /H ⁺ exchange across mitochondrial membranes. Nigericin shows promising anti-cancer activities through decreasing intracellular pH (pHi), and inactivation of Wnt/ β -catenin signals. Nigericin induces pyroptosis through caspase 1/GSDMD in TNBC ^{[1][2][3][4][5][6][7]} .
IC ₅₀ & Target	NLRP3
In Vitro	Nigericin (0-4 μ g/ml; 24 h) induces pyroptosis through caspase 1/GSDMD pathway in TNBC cells ^[6] .

Nigericin (1 µg/mL, 8 × MIC; 2 µg/mL, 16 × MIC; 196 h) is a bactericidal antibiotic against MDR gram-positive bacteria^[4].
Nigericin (0-0.25 µg/ml; 24 h) inactivates Wnt/β-catenin pathway in H460 cells as an anti-cancer effect^[7].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay^[4]

Cell Line:	<i>S. aureus</i> , <i>Staphylococcus epidermidis</i> , <i>Enterococcus faecalis</i> , <i>E. faecium</i> , <i>S. pneumoniae</i> , and <i>Streptococcus agalactiae</i>
Concentration:	0 µg/ml, 0.05 µg/ml, 0.125 µg/ml, 0.25 µg/ml
Incubation Time:	24 h
Result:	Exhibited potent activity against these clinical MDR strains, with MIC values ranging from 0.004-0.25 mg/ml.

Western Blot Analysis^[6]

Cell Line:	MDA-MB-231, and 4T1 cells
Concentration:	0 µg/ml, 2 µg/ml, 4 µg/ml
Incubation Time:	24 h
Result:	Showed increasing in the proteins level of caspase 1 and N-GSDMD.

Cell Viability Assay^[7]

Cell Line:	H460 cells
Concentration:	0.5 µM, 1 µM, 2.5 µM
Incubation Time:	24 h
Result:	Showed downregulating in the expression of proteins of the canonical Wnt (LRP6, Wnt5a/b, and β-catenin) signaling pathway.

In Vivo

Nigericin (1 mg/kg; i.p.; every 12 h for 3 D) reduces the infection of *S. aureus* USA300 in mice^[4].
Nigericin (0.025 mg/kg; s.c.; every two days in 4 weeks) plus anti-PD-1 shows synergistic anti-cancer effect^[6].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	BALB/c Mice injected orthotopically with 4T1 cells ^[6]
Dosage:	0.025 mg/kg
Administration:	Subcutaneous injection (s.c.)
Result:	Showed combination with anti-PD-1 antibody almost completely suppressed tumor growth.
Animal Model:	Mice Infected with <i>S. aureus</i> USA300 ^[4]
Dosage:	1 mg/kg
Administration:	Intraperitoneal injection (i.p.)
Result:	Showed reduction in the bacterial burden to 1,000-10,000-fold in the major organs.

CUSTOMER VALIDATION

- Cell Res. 2023 Sep 19.
- Cell Host Microbe. 2023 Nov 8;31(11):1820-1836.e10.
- Cell Metab. 2020 May 5;31(5):892-908.e11.
- Bioact Mater. 20 July 2022.
- J Extracell Vesicles. 2023 Feb;12(2):e12310.

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- [1]. Xiaoli Zhu, et al. Nigericin is effective against multidrug resistant gram-positive bacteria, persists, and biofilms. Front Cell Infect Microbiol. 2022 Dec 20;12:1055929.
- [2]. Guanzhuang Gao, et al. Evidence of nigericin as a potential therapeutic candidate for cancers: A review. Biomed Pharmacother. 2021 May;137:111262.
- [3]. Lisha Wu, et al. Nigericin Boosts Anti-Tumor Immune Response via Inducing Pyroptosis in Triple-Negative Breast Cancer. Cancers (Basel). 2023 Jun 16;15(12):3221.
- [4]. Juan Sebastian Yakisich, 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.
- [5]. Zotova L, et al. Novel components of an active mitochondrial K(+)/H(+) exchange. J Biol Chem. 2010 May 7;285(19):14399-414.
- [6]. Mariathasan S, et al. Cryopyrin activates the inflammasome in response to toxins and ATP. Nature. 2006 Mar 9;440(7081):228-32.
- [7]. Bissinger R, et al. Triggering of Suicidal Erythrocyte Death by the Antibiotic Ionophore Nigericin. Basic Clin Pharmacol Toxicol. 2016 May;118(5):381-9.
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Caution: Product has not been fully validated for medical applications. For research use only.

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