

## Nisin Z

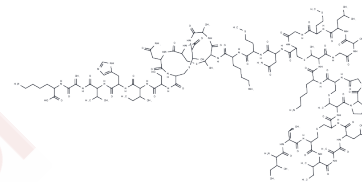
## Chemical Properties

CAS No. : 137061-46-2

Formula: C141H229N41O38S7

Molecular Weight: 3331.03

Storage: Keep away from moisture, Keep away from direct sunlight  
 Powder: -20°C for 3 years | In solvent: -80°C for 1 year  
 Actual storage temperature shall be subject to the COA.



## Biological Description

Description	Nisin Z has anti-inflammatory activity and reduces pro-inflammatory cytokine release by inhibiting activation of the ERK1/2 and p38 mitogen-activated protein kinase (MAPK) signaling pathways, attenuating lipopolysaccharide-induced mastitis through inhibition of the ERK1/2 and p38 mitogen-activated protein kinase signaling pathways.
Targets(IC50)	ERK,Antibacterial,Antifungal,p38 MAPK
In vitro	Nisin Z (10 µg/mL, 24 h) promoted the detachment and differentiation of gingival fibroblasts. Nisin Z (25-75 µg/mL, 24 h) inhibited the adhesion of C. albicans to gingival cells. [2] Nisin Z (500 and 1000 µg/mL, 24 hours) inhibited the formation of germ tubes in C. albicans. [3] Nisin Z (100 µg/mL, 12 h) decreased LPS-induced secretion of pro-inflammatory cytokines (e.g., IL-6, TNF-α, IL-1β) in MCF10A cells Nisin Z (10-100 µg/mL, 12 h) inhibited LPS-induced activation of the ERK1/2 and p38 MAPK signaling pathways in MCF10A cells. [4]
In vivo	Nisin Z (1, 5 and 10 mg/kg, intraperitoneal injection) helps to prevent pathological damage in LPS-induced mouse mastitis model. [4]

## Solubility Information

Solubility	H2O: 8 mg/mL (2.4 mM), Sonication is recommended. DMSO: 1 mg/mL (0.3 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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### Preparing Stock Solutions

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	<b>1mg</b>	<b>5mg</b>	<b>10mg</b>
1 mM	0.3002 mL	1.501 mL	3.0021 mL
5 mM	0.060 mL	0.3002 mL	0.6004 mL
10 mM	0.030 mL	0.1501 mL	0.3002 mL
50 mM	0.006 mL	0.030 mL	0.060 mL

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Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

### Reference

- Webber JL, et al. Incorporation and antimicrobial activity of nisin Z within carrageenan/chitosan multilayers. *Sci Rep.* 2021 Jan 18;11(1):1690.
- Akery B, et al. In vitro efficacy of nisin Z against *Candida albicans* adhesion and transition following contact with normal human gingival cells. *J Appl Microbiol.* 2009 Oct;107(4):1298-307.
- Le Lay C, et al. Nisin Z inhibits the growth of *Candida albicans* and its transition from blastospore to hyphal form. *J Appl Microbiol.* 2008 Nov;105(5):1630-9.
- Huang F, et al. Nisin Z attenuates lipopolysaccharide-induced mastitis by inhibiting the ERK1/2 and p38 mitogen-activated protein kinase signaling pathways. *J Dairy Sci.* 2022 Apr;105(4):3530-3543.

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