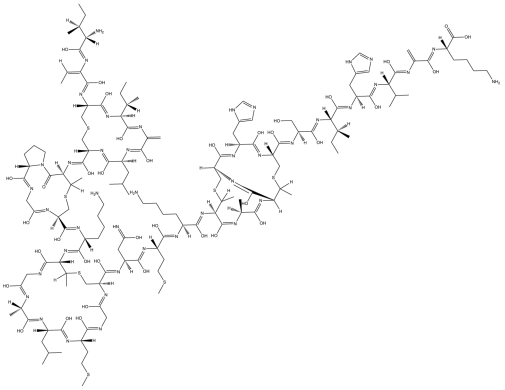
Product Data Sheet

Product Name: Nisin A
Cat. No.: GC10569

Chemical Properties

Cas. No.	1414-45-5		
Chemical Name	L-isoleucyl-(Z)-2,3-didehydro-2-aminobutanoyl-D-cysteinyl-L- isoleucyl-2,3-didehydroalanyl-L-leucyl-L-cysteinyl-threo-3- mercapto-D-2-aminobutanoyl-L-prolylglycyl-L-cysteinyl-L-lysyl- threo-3-mercapto-D-2-aminobutanoylglycyl-L-alanyl-L-leucyl-L- methionyl		
SMILES	O=C(N1[C@@](H])(CCC1)C(NC2)=O)[C@@H](NC([C@@H](NC([C@H](CC(C)C)NC(C(N3)=C)=O)=O)CSC[C@@H](NC(/C(NC([C@H]([C@H](CC)C)N)=O)=C/C)=O)C(N[C@](H])(C3=O)[C@H](CC)C)=O)=O)[C@H](C)SC[C@@H](C(N[C@H](C(N[C@@H]([C@H](C)SC[C@@H](C(N[C@H](C(N[C@H](C(N[C@H](C(N[C		
Formula	$C_{143}H_{230}N_{42}O_{37}S_7$	M.Wt	3354.1
Solubility	≤0.25mg/ml in DMSO	Storage	-20°C, protect from light
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Background

Nisin A is an antibacterial peptide.

Nisin A is produced by the lactic acid bacterium L. lactis using uncommon amino acids, including

Product Data Sheet

lanthionine, and is a member of the class of antibiotics referred to as lantibiotics.

In vitro: Previous study showed that the sperm motility could be completely inhibited with nisin A. The minimum effective concentration of nisin A required to immobilize sperm in vitro within 20 s was found to be 50 microg in rat, 200 microg in rabbit and 300-400 microg in monkey and human. Such inhibitory effect on sperm motility was found to be dose- and time-dependent [1].

In vivo: Intravaginal administration of nisin A before mating during proestrus-estrous transition phase caused complete arrest of sperm motility and blockage of conception. Subacute toxicity studies in rats showed that, repetitive intravaginal application of nisin A at the dose of 200 microg for 14 days caused no abnormalities either in the length of estrous cycle or in the morphology of vaginal epithelial cells. Moreover, no histopathological abnormalities in vaginal tissue or any change in blood and serum biochemical profiles were seen. In addition, no adverse effects were found on subsequent reproductive performance, development of pups and neonate survival [1].

Clinical trial: Up to now, nisin A is still in the preclinical development stage.

Reference:
[1] Aranha C, Gupta S, Reddy KV. Contraceptive efficacy of antimicrobial peptide Nisin: in vitro and in vivo studies. Contraception. 2004 Apr;69(4):333-8.