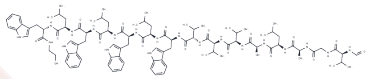
Data Sheet (Cat.No.T1130)

TargetMol

Gramicidin

Chemical Properties



CAS No. :	1405-97-6
Formula:	C99H140N20O17
Molecular Weight:	1882.33
Appearance:	no data available
Storage:	keep away from moisture Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Gramicidin (Gramicidine) is an antimicrobial peptide. Gramicidin dimers form ion channel-like pores in the cell membranes and organelles of bacterial and animal cells, allowing inorganic monovalent ions, such as potassium and sodium ions, to pass freely through the pores by diffusion, disrupting the important ionic gradient between membranes and thus killing the cells by various actions. Gramicidin is effective against Gram-positive bacteria such as Bacillus subtilis and Staphylococcus aureus, but is not as effective against Gram-negative bacteria such as Escherichia coli.
Targets(IC50)	Antibacterial,Antibiotic,MRP
In vitro	**METHODS**: OC cells OVCAR8, A2780 and SKOV3 were treated with Gramicidin (0.33-3 μM) for 24-72 h. Cell viability was measured by WST-1 assay. **RESULTS**: Gramicidin inhibited the growth of OC cells in a dose- and time-dependent manner, with IC50 values of 0.0763, 0.1856 and 0.1148 μM for OVCAR8, SKOV3 and A2780 cells, respectively, at 72 h.[1] **METHODS**: Human gastric cancer cells SGC-7901 were treated with Gramicidin (0.3-3 μM) for 24-48 h. Apoptosis was detected by Flow cytometry. **RESULTS**: Gramicidin promoted apoptosis in SGC-7901 cells in a time- and dose-dependent manner. When cells were incubated with Gramicidin for 48 h, the percentage of viable cells decreased to 54.2% with 3 μM Gramicidin treatment compared to control. [2]
In vivo	**METHODS**: To study the effect on in vivo allograft survival, Gramicidin (2-4 mg/kg) was injected intraperitoneally into ectopic heart transplanted rats once daily for 6 days. **RESULTS**: Graft pulsation in the control group ceased at 5.4+/-0.4 days post-transplantation due to acute allograft rejection, whereas recipients in the group receiving intraperitoneal injections of Gramicidin (2-4 mg/kg) had a significant prolongation of graft pulsation to 15.4+/-4.3 or 18.4+/-3.9 days post-transplantation, respectively. [3]

Solubility Information

Solubility	DMSO: 50 mg/mL (26.56 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.5313 mL	2.6563 mL	5.3126 mL
5 mM	0.1063 mL	0.5313 mL	1.0625 mL
10 mM	0.0531 mL	0.2656 mL	0.5313 mL
50 mM	0.0106 mL	0.0531 mL	0.1063 mL

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.

Reference

Choi MS, et al. Gramicidin, a Bactericidal Antibiotic, Is an Antiproliferative Agent for Ovarian Cancer Cells. Medicina (Kaunas). 2023 Nov 22;59(12):2059.

Wang J, Zhu Y, Chen J, et al. Identification of a novel PAK1 inhibitor to treat pancreatic cancer. Acta Pharmaceutica Sinica B. 2020, 10(4): 603-614.

Chen T, et al. Gramicidin inhibits human gastric cancer cell proliferation, cell cycle and induced apoptosis. Biol Res. 2019 Nov 25;52(1):57.

Choi M S, Lee C Y, Kim J H, et al.Gramicidin, a Bactericidal Antibiotic, Is an Antiproliferative Agent for Ovarian Cancer Cells.Medicina.2023, 59(12): 2059.

Hirano T, et al. Gramicidin as a potential immunosuppressant for organ transplantation: suppression of human lymphocyte blastogenesis in vitro and prolongation of heart allograft survival in the rat. J Pharmacol Exp Ther. 1995 Apr;273(1):223-9.

Zhao L, Sun X, Hou C, et al.CPNE7 promotes colorectal tumorigenesis by interacting with NONO to initiate ZFP42 transcription.Cell Death & Disease.2024, 15(12): 896.