

## Periplanetasin-4

## Chemical Properties

CAS No. :	2206807-06-7
Formula:	C70H110N20O15S
Molecular Weight:	1503.84
Storage:	Keep away from moisture Powder: -20°C for 3 years   In solvent: -80°C for 1 year <small>Actual storage temperature shall be subject to the COA.</small>

## Biological Description

Description	Periplanetasin-4 is an antimicrobial peptide extracted from the American cockroach ( <i>Periplaneta americana</i> ). It reduces cell rounding and apoptosis (apoptosis) and inhibits ROS production and downstream activation of p38 MAPK and p21 induced by <i>Clostridium difficile</i> toxin A. Periplanetasin-4 significantly increases mitochondrial calcium levels in <i>Candida albicans</i> ATCC 90028 cells, decreases DPH fluorescence intensity, and causes vacuole dysfunction. Additionally, it notably improves mucosal damage in mice intestines caused by toxin A. Periplanetasin-4 can be utilized for colitis research.
Targets(IC50)	Apoptosis,Caspase,p38 MAPK
In vitro	Periplanetasin-4 at a concentration of 100 µg/mL over a period of 48 hours significantly restores the viability of HT29 cells compromised by <i>Clostridium difficile</i> toxin A and reduces cell rounding. It effectively diminishes the number of TUNEL-positive apoptotic cells and inhibits caspase-3 activation, an apoptosis marker, in HT29 cells induced by the same toxin. Additionally, Periplanetasin-4 at 100 µg/mL for 45 minutes completely suppresses ROS production in HT29 cells caused by <i>Clostridium difficile</i> toxin A. It also significantly blocks the activation of p38MAPK and the upregulation of p21 in HT29 cells when applied for 4 hours at the same concentration. When applied at 5 µM for 2-4 hours, Periplanetasin-4 markedly enhances PI influx and DiBAC4(3) accumulation in <i>Candida albicans</i> ATCC 90028 cells. It raises intracellular ROS levels and promotes the generation of mitochondrial superoxide radicals and hydrogen peroxide within 2 hours. In addition, it significantly induces phosphatidylserine externalization and caspase activation in <i>Candida albicans</i> ATCC 90028 protoplasts during the same period. Following treatment for 2 hours at 5 µM, it increases malondialdehyde (MDA) levels, boosts catalase activity and total glutathione content, causes mitochondrial membrane potential collapse, elevates mitochondrial biomass, and facilitates mitochondrial fragmentation. Periplanetasin-4 also enhances BCECF and C-DCFDA fluorescence intensity, mitochondrial calcium levels, decreases DPH fluorescence intensity, and induces vacuolar dysfunction in <i>Candida albicans</i> ATCC 90028 cells when administered at the same concentration for 2 hours.
In vivo	When administered intravenously at a concentration of 100 µg/mL into the ileum loop of mice for 4 hours, Periplanetasin-4 significantly ameliorates mucosal damage caused by toxin A in the intestinal tract.

### Preparing Stock Solutions

	<b>1mg</b>	<b>5mg</b>	<b>10mg</b>
1 mM	0.665 mL	3.3248 mL	6.6496 mL
5 mM	0.133 mL	0.665 mL	1.3299 mL
10 mM	0.0665 mL	0.3325 mL	0.665 mL
50 mM	0.0133 mL	0.0665 mL	0.133 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.

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.

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