Data Sheet (Cat.No.T200251)

TargetMol

Antimicrobial agent-34

Chemical Properties

CAS No. :

Formula: C32H52N2O3

Molecular Weight: 512.77

Storage: 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	Antimicrobial agent-34 (compound 4h), characterized by its clogP value of 9.14, effectively disrupts the integrity of bacterial cell membranes. This compound boasts a minimum inhibitory concentration (MIC) ranging from 1-4 μg/mL and shows notable plasma stability with an HC50 of 131.1 μg/mL. Additionally, it exhibits excellent membrane selectivity, as evidenced by its HC50/MIC ratio of 65.6, and possesses rapid sterilization capabilities. It not only increases intracellular reactive oxygen species but also causes the leakage of protein and DNA, culminating in bacterial death. Antimicrobial agent-34 has demonstrated significant antibacterial effectiveness in vivo, particularly in a mouse sepsis model infected with Staphylococcus aureus ATCC43300.
Targets(IC50)	Antibacterial
In vitro	Antimicrobial agent-34 maintains stability in human serum, plasma, and blood with Minimum Bactericidal Concentrations (MBC) of 16, 16, and 32 μg/mL respectively, without losing its antimicrobial activity. It exhibits strong inhibitory activity against six types of Gram-positive bacteria, boasting a broad antimicrobial spectrum with Minimum Inhibitory Concentrations (MIC) ranging from 1-4 μg/mL. It also shows significant inhibitory effects on Klebsiella pneumoniae ATCC10031, Acinetobacter baumannii ATCC19606, and Escherichia coli ATCC25922, with MICs of 4, 2, and 4 μg/mL, respectively. At concentrations ranging from 1 to 16 times the MIC, Antimicrobial agent-34 rapidly inhibits Staphylococcus aureus, exhibiting dose-dependent effects. Resistance induction is minimal with Antimicrobial agent-34 (2-16 mg/mL; 0-24 h), as demonstrated in sub-MIC (1/2 MIC) resistance testing on Staphylococcus aureus ATCC43300, where the MIC only varied by 2-4 times. Furthermore, Antimicrobial agent-34 (2-64 mg/mL, 0-20 days) strongly inhibits and disrupts preformed biofilms in a dose-dependent manner. Lastly, Antimicrobial agent-34 (2-32 mg/mL, 0-20 min) disrupts the transmembrane potential of Staphylococcus aureus, increasing permeability and effectively elevating levels of ROS, DNA, and proteins within the bacteria.
In vivo	Antimicrobial Agent-34, administered intraperitoneally at doses of 5 and 10 mg/kg at 12-hour intervals for two days, exhibits strong in vivo inhibitory effects against Gram-positive bacteria. In a murine model of Staphylococcus aureus ATCC43300-induced sepsis, this treatment significantly reduced bacterial loads in the blood, liver, kidneys, and spleen, along with notable decreases in the levels of TNF-α and IL-6 in the mouse blood post-treatment.

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.9502 mL	9.751 mL	19.5019 mL
5 mM	0.390 mL	1.9502 mL	3.9004 mL
10 mM	0.195 mL	0.9751 mL	1.9502 mL
50 mM	0.039 mL	0.195 mL	0.390 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.