Antimicrobial agent-5

Cat. No.: HY-151399

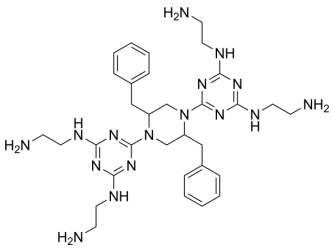
Molecular Formula: $C_{32}H_{48}N_{16}$

Molecular Weight: 656.83

Target: Bacterial

Pathway: Anti-infection

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Antimicrobial agent-5 is an potent antimicrobial agent, and displays excellent cell selectivity against Gram-negative bacteria and Gram-positive bacteria. Antimicrobial agent-5 blocks the interaction between LPS and CD14/TLR4 receptor, and shows anti-inflammatory activity against LPS-induced inflammation[1].

In Vitro

Antimicrobial agent-5 (compound 9) (0.5-32 μg/mL, 16 h; 1-128 μg/mL; 24 h) shows potent biofilm inhibitory (IC_{50}=2 μg/mL) and eradicating activities (IC_{50}=16 μg/mL) against multidrug-resistant Pseudomonas aeruginosa (MDRPA)[1].
Antimicrobial agent-5 (5 μgmL, 20 μg/mL; 18 h) inhibits both the release and expression of nitric oxide (NO) and tumor necrosis factor-α (TNF-α) from LPS-stimulated (1 μg/mL) RAW 264.7 cells[1].
Antimicrobial agent-5 exhibits proteolytic resistance and salt/serum stability[1].
Antimicrobial agent-5 (0.5-256 μg/mL; 2 h) exhibits negligible side effects against sheep red blood cells (sRBCs) with hemolytic activity (the minimum hemolytic concentration, MHC) of >256 μg/mL[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	RAW264.7 cells
Concentration:	5 μg/mL, 20 μg/mL
Incubation Time:	18 hours
Result:	Decreased TNF-α release at 20 μg/mL, with inhibition rate of 72.44%. Results reduction in the LPS-stimulated production of NO, with inhibition rate of 31.51%.

Cell Viability Assay[1]

Cell Line:	E. coli [KCTC 1682], P. aeruginosa [KCTC 1637], S. epidermidis [KCTC 1917], S. aureus [KCTC1621]
Concentration:	1-128 μg/mL
Incubation Time:	24 hours
Result:	Inhibited Gram-negative bacteria and Gram-positive bacteria with IC_{50} of 6.1 μM (E. coli [KCTC 1682], P. aeruginosa [KCTC 1637], S. epidermidis [KCTC 1917], S. aureus [KCTC1621]), respectively.

REFERENCES

[1]. Dinesh Kumar S, et al. Cationic, amphipathic small molecules based on a triazine-piperazine-triazine scaffold as a new class of antimicrobial agents. Eur J Med Chem. 2022 Sep 8;243:114747.

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