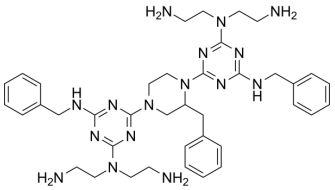
Antimicrobial agent-8

Cat. No.:	HY-151402
CAS No.:	2978694-22-1
Molecular Formula:	$C_{39}H_{54}N_{16}$
Molecular Weight:	746.95
Target:	Bacterial
Pathway:	Anti-infection
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (133.88 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3388 mL	6.6939 mL	13.3878 mL
	5 mM	0.2678 mL	1.3388 mL	2.6776 mL
	10 mM	0.1339 mL	0.6694 mL	1.3388 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 2.5 mg/mL (3.35 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (3.35 mM); Clear solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: 2.5 mg/mL (3.35 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Antimicrobial agent-8 (Compound 15) is a potent antimicrobial agent, and shows potent antimicrobial activity with an MIC range of 2-8 μg/mL against Gram-negative and Gram-positive bacteria. Antimicrobial agent-8 shows anti-inflammatory activity against lipopolysaccharide-induced inflammation.

In Vitro

Antimicrobial agent-8 (2.8-56.4 μM; 24 h) inhibits Gram-negative bacteria and Gram-positive bacteria growth[1].
Antimicrobial agent-8 (5 and 20 μg/mL; 18 h) inhibits the production of nitric oxide (NO) and tumor necrosis factor-α (TNF-α) by lipopolysaccharide-stimulated in RAW 264.7 cells[1].

Antimicrobial agent-8 (1-32 μg/mL, 16 h; 8-128 μg/mL; 24 h) shows potent biofilm inhibitory ($MBIC_{50}$=1 μg/mL) and eradicating activities ($MBEC_{50}$=8 μg/mL) by MDRPA bacteria[1].
Antimicrobial agent-8 exhibits proteolytic resistance and salt/serum stability[1].
Antimicrobial agent-8 displays synergistic or additive effects when combined with selected clinically used antibiotics[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	E. coli [KCTC 1682], P. aeruginosa [KCTC 1637], S. epidermidis [KCTC 1917] and S. aureus [KCTC1621]
Concentration:	2.8-56.4 μM
Incubation Time:	24 hours
Result:	Inhibited Gram-negative bacteria with MIC values of 5.4 μM for E. coli [KCTC 1682] and P. aeruginosa [KCTC 1637]. Inhibited Gram- positive bacteria with MIC values of 2.7 μM and 5.4 μM for S. epidermidis [KCTC 1917] and S. aureus [KCTC1621], respectively.

Cell Viability Assay[1]

Cell Line:	RAW 264.7 macrophages
Concentration:	5 and 20 μg/mL
Incubation Time:	18 hours
Result:	Observed LPS-stimulated production of NO with an inhibitory rate of 90.79% at 5 μg/mL. Exhibited inhibitory effects on the LPS-stimulated production of TNF-α with an inhibitory rate of 95.4% at 20 μg/mL.

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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