# Antimicrobial agent-8

**Cat. No.:** HY-151402

**Molecular Formula:** $C_{39}H_{54}N_{16}$

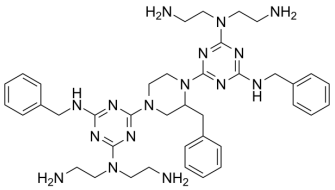
**Molecular Weight:** 746.95

**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].<br>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.<br>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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