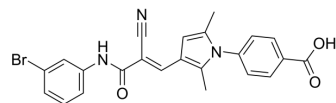


## RNPA1000

|                           |   |       |         |
|---------------------------|---|-------|---------|
| <b>Cat. No.:</b>          | HY-12824  |       |         |
| <b>CAS No.:</b>           | 359600-10-5   |       |         |
| <b>Molecular Formula:</b> | C <sub>23</sub> H <sub>18</sub> BrN <sub>3</sub> O <sub>3</sub> |       |         |
| <b>Molecular Weight:</b>  | 464.31  |       |         |
| <b>Target:</b>            | Bacterial; Antibiotic   |       |         |
| <b>Pathway:</b>           | Anti-infection  |       |         |
| <b>Storage:</b>           | Powder  | -20°C | 3 years |
|                           |   | 4°C   | 2 years |
|                           | In solvent  | -80°C | 2 years |
|                           |   | -20°C | 1 year  |



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 50 mg/mL (107.69 mM; Need ultrasonic)

| Concentration             | Solvent | Mass      |            |            |
|---------------------------|---------|-----------|------------|------------|
|                           |         | 1 mg      | 5 mg       | 10 mg      |
| Preparing Stock Solutions | 1 mM    | 2.1537 mL | 10.7687 mL | 21.5373 mL |
|                           | 5 mM    | 0.4307 mL | 2.1537 mL  | 4.3075 mL  |
|                           | 10 mM   | 0.2154 mL | 1.0769 mL  | 2.1537 mL  |

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

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.5 mg/mL (5.38 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (5.38 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (5.38 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

RNPA1000, an antibiotic, is a potent RnpA inhibitor and inhibits RnpA-mediated cellular RNA degradation. RNPA1000 inhibits tRNA maturation with an IC<sub>50</sub> of 175 μM. RNPA1000 displays broad-spectrum antimicrobial activities and inhibits staphylococcal and all Gram-positive bacterial pathogens activity<sup>[1][2][3]</sup>.

#### In Vitro

RNPA1000 displays antimicrobial activity toward Gram-positive bacteria and little or no toxicity toward human cells<sup>[2]</sup>. RNPA1000 limits *S. aureus* mRNA turnover and growth. RNPA1000 also limits growth of other important Gram-positive bacterial pathogens, exhibits antimicrobial efficacy against biofilm associated *S. aureus* and protects against the *S. aureus*

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pathogenesis in an animal model of infection<sup>[3]</sup>.

RNPA1000 (IC<sub>50</sub>= 100-125 μM), does not affect the activity of the commercially available E. coli RNase HI, RNase A, RNase I or in-house purified S. aureus RNase J1 at any concentration tested (0-750 μM), but does mildly inhibit E. coli RNase III activity (IC<sub>50</sub>= 500-750 μM)<sup>[3]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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## REFERENCES

- [1]. Eidem TM, et al. Drug-eluting cements for hard tissue repair: a comparative study using vancomycin and RNPA1000 to inhibit growth of Staphylococcus aureus. J Biomater Appl. 2014 Apr;28(8):1235-46.
- [2]. Eidem TM, et al. Small-molecule inhibitors of Staphylococcus aureus RnpA-mediated RNA turnover and tRNA processing. Antimicrob Agents Chemother. 2015 Apr;59(4):2016-28.
- [3]. Patrick D Olson, et al. Small molecule inhibitors of Staphylococcus aureus RnpA alter cellular mRNA turnover, exhibit antimicrobial activity, and attenuate pathogenesis. PLoS Pathog. 2011 Feb 10;7(2):e1001287.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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