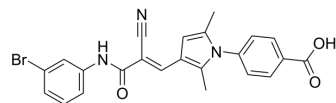


## RNPA1000

<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

<b>In Vitro</b>	DMSO : 50 mg/mL (107.69 mM; Need ultrasonic)					
		Solvent Concentration	Mass	1 mg	5 mg	10 mg
	<b>Preparing Stock Solutions</b>	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.						
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: ≥ 2.5 mg/mL (5.38 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (5.38 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 2.5 mg/mL (5.38 mM); Clear solution</li> </ol>					

### BIOLOGICAL ACTIVITY

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

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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.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA