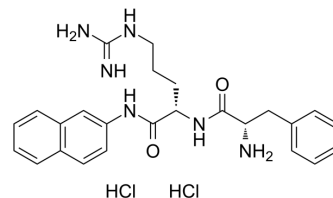


## PAβN dihydrochloride

<b>Cat. No.:</b>	HY-101444A
<b>CAS No.:</b>	100929-99-5
<b>Molecular Formula:</b>	C <sub>25</sub> H <sub>32</sub> Cl <sub>2</sub> N <sub>6</sub> O <sub>2</sub>
<b>Molecular Weight:</b>	519.47
<b>Target:</b>	Bacterial
<b>Pathway:</b>	Anti-infection
<b>Storage:</b>	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 83.33 mg/mL (160.41 mM; Need ultrasonic)				
	H <sub>2</sub> O : 14.29 mg/mL (27.51 mM; Need ultrasonic)				
	<b>Preparing Stock Solutions</b>	<b>Mass</b>	<b>1 mg</b>	<b>5 mg</b>	<b>10 mg</b>
		<b>Solvent</b>			
		<b>Concentration</b>			
<b>1 mM</b>		1.9250 mL	9.6252 mL	19.2504 mL	
<b>5 mM</b>	0.3850 mL	1.9250 mL	3.8501 mL		
<b>10 mM</b>	0.1925 mL	0.9625 mL	1.9250 mL		
Please refer to the solubility information to select the appropriate solvent.					
<b>In Vivo</b>	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.08 mg/mL (4.00 mM); Clear solution				
	2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.08 mg/mL (4.00 mM); Clear solution				
	3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.08 mg/mL (4.00 mM); Clear solution				

### BIOLOGICAL ACTIVITY

<b>Description</b>	PAβN dihydrochloride (MC-207110 dihydrochloride) is an efflux pump inhibitor.
<b>In Vitro</b>	PAβN increases the susceptibilities of the three pump-overexpressing mutants of <i>P. aeruginosa</i> to levofloxacin 64-fold. PAβN also potentiates the activity of levofloxacin against strain PAM2391 containing plasmid pAGH97 with the mexXY genes and against wild-type strain PAM1020. PAβN has an effect on susceptibilities to other antibiotics that are substrates of efflux pumps. PAβN increases levels of accumulation of efflux pump substrates inside the cell. It enhances the activity of levofloxacin against clinical isolates of <i>P. aeruginosa</i> <sup>[1]</sup> . PAβN reduces the MICs in nine ciprofloxacin-resistant isolates, and in four of these, PAβN increases the susceptibility by twofold. Moreover, PAβN restores ciprofloxacin susceptibility in five of

the ciprofloxacin-resistant isolates. In addition, clear effects of NMP on the ciprofloxacin MICs are seen for 20 of these ciprofloxacin-resistant isolates<sup>[2]</sup>. PAβN permeabilizes bacterial membranes in a concentration-dependent manner at levels below those typically used in combination studies, and this additional mode of action should be considered when using PAβN as a control for efflux studies<sup>[3]</sup>.

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

## CUSTOMER VALIDATION

- J Antimicrob Chemother. 2021 Oct 11;dkab375.
- Front Cell Infect Microbiol. 25 March 2021.
- Microb Drug Resist. 2020 Jun;26(6):550-560.
- bioRxiv. 2020 Apr.

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## REFERENCES

[1]. Lomovskaya O, et al. Identification and characterization of inhibitors of multidrug resistance efflux pumps in *Pseudomonas aeruginosa*: novel agents for combination therapy. *Antimicrob Agents Chemother*. 2001 Jan;45(1):105-16.

[2]. Kurin?i? M, et al. Effects of efflux pump inhibitors on erythromycin, ciprofloxacin, and tetracycline resistance in *Campylobacter* spp. isolates. *Microb Drug Resist*. 2012 Oct;18(5):492-501.

[3]. Lamers RP, et al. The efflux inhibitor phenylalanine-arginine beta-naphthylamide (PAβN) permeabilizes the outer membrane of gram-negative bacteria. *PLoS One*. 2013;8(3):e60666.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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