PAβN dihydrochloride

Cat. No.: HY-101444A

CAS No.: 100929-99-5

Molecular Formula: $C_{25}H_{32}Cl_2N_6O_2$

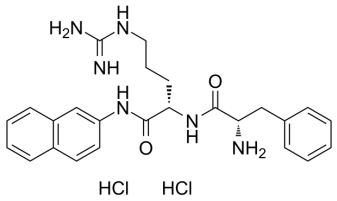
Molecular Weight: 519.47

Target: Bacterial

Pathway: Anti-infection

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 83.33 mg/mL (160.41 mM; Need ultrasonic)

H_2O : 14.29 mg/mL (27.51 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.9250 mL	9.6252 mL	19.2504 mL
5 mM	0.3850 mL	1.9250 mL	3.8501 mL
10 mM	0.1925 mL	0.9625 mL	1.9250 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: ≥ 2.08 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

Description

PAβN dihydrochloride (MC-207110 dihydrochloride) is an efflux pump inhibitor.

In Vitro

PAβN increases the susceptibilities of the three pump-overexpressing mutants of P. aeruginosa 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 P. aeruginosa[1]. 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[2]. 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[3].

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

CUSTOMER VALIDATION

- Front Cell Infect Microbiol. 2021 Mar 25;11:660431.
- J Antimicrob Chemother. 2021 Oct 11;dkab375.
- mSphere. 2023 Feb 28;e0067322.
- Microb Pathog. 2023 Oct 16:106397.
- Microb Drug Resist. 2020 Jun;26(6):550-560.

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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.

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