ACHN-975

Cat. No.: HY-19936

CAS No.: 1410809-36-7

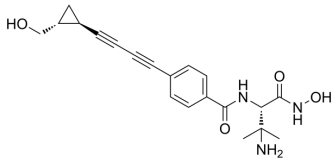
Molecular Formula: $C_{20}H_{23}N_3O_4$

Molecular Weight: 369.41

Target: Bacterial

Pathway: Anti-infection

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	ACHN-975 is a selective LpxC inhibitor and exhibits a subnanomolar LpxC inhibitory activity. ACHN-975 is against a wide range of gram-negative bacterias with low MIC values (≤1 μg/mL)[1].
IC_{50} & Target	LpxC[1]
In Vitro	ACHN-975 is against Enterobacteriaceae spp with an IC_{50} of 0.02 nM[1]. ACHN-975 is against Enterobacteriaceae spp, Pa, and Ab with MIC90 values of 1, 0.5, and >64 μg/mL, respectively[1]. ACHN-975 is potently against the P. aeruginosa isolates tested, inhibiting 100% of the isolates at an MIC of ≤2 μg/ml. It against Pseudomonas aeruginosa with an MIC_{50} and MIC_{90} of 0.06 and 0.25 μg/ml, respectively[2]. ACHN-975 is against six P. aeruginosa isolates, it against P. aeruginosa APAE1064, APAE1232, and APAE1064 isolates with MIC values of 0.12, 0.06 and 0.06 μg/ml, respectively[2]. LpxC is highly conserved in gram-negative bacteria and catalyzes the first committed step of lipid A biosynthesis. LpxC is the bacterial enzyme Zinc-dependent metalloamidase UDP-3-O-[(R)-3-hydroxymyristoyl]-N-acetylglucosamine deacetylase[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	ACHN-975 (intraperitoneal administration; 5-30 mg/kg; single dose) leads to a steady reduction in bacterial titers in the first 4 h following treatment for all dosing groups. The sampling shows that the level of free drug in this model drops below the ACHN-975 MIC for this isolate (0.25 μg/ml) by 2 h after treatment with the 10 mg/kg dose and by 4 h after treatment with the 30 mg/kg dose[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Neutropenic mouse thigh model with P. aeruginosa ATCC 27853[2]
Dosage:	5-30 mg/kg
Administration:	Intraperitoneal administration; single dose
Result:	Had a bactericidal activity and was against the P. aeruginosa ATCC 27853 strain in vivo.

CUSTOMER VALIDATION

- ACS Infect Dis. 2022 Sep 13.

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REFERENCES

[1]. Kalinin DV, et al. Insights into the Zinc-Dependent Deacetylase LpxC: Biochemical Properties and Inhibitor Design. Curr Top Med Chem. 2016;16(21):2379-430.

[2]. Krause KM,et al. Potent LpxC Inhibitors with In Vitro Activity against Multidrug-Resistant Pseudomonas aeruginosa.Antimicrob Agents Chemother. 2019 Oct 22;63(11). pii: e00977-19.

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