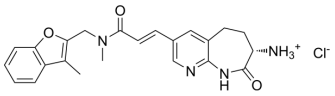
Fabimycin

Cat. No.:	HY-151102
CAS No.:	2651965-71-6
Molecular Formula:	$C_{23}H_{25}ClN_4O_3$
Molecular Weight:	440.92
Target:	Antibiotic; Bacterial
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Fabimycin is a FabI inhibitor with potent antibacterial activity against gram-negative bacteria. Fabimycin is effective against drug-resistant gram-negative Infections in vivo[1].

In Vitro

Fabimycin shows outstanding activity against S. aureus (MIC: 4 ng/mL), E. coli MG1655 (MIC: 2 μg/mL)[1].
Fabimycin (4 μg/mL) inhibits 90% of the strainsagainst a panel of 100 K. pneumoniae clinical isolates[1].
Fabimycin enhances the stability of the enzyme-inhibitor complex significantly more than the less active enantiomer in both E. coli and A. baumannii versions of FabI[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Fabimycin (Intramuscular injection, 5 mg/kg, 2 and 7 h postinfection) shows significant great reduction of bacterial burden in Neutropenic mouse thigh infection initiated in CD-1 mice with S. aureus[1].
Fabimycin (intraperitoneal injection) is tolerated in mice with an MTD of >200 mg/kg[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Acute pneumonia murine or neutropenic mouse thigh infection model, initiated in CD-1 mice with A. baumannii[1]
Dosage:	50 mg/kg
Administration:	Intramuscular injection, 4, 23, and 41 h postinfection (pneumonia model), or 2, 6, and 11 h postinfection (thigh infection)
Result:	Achieved a >3□fold decrease in log(CFU/lung) and >2-fold decrease log(CFU/thigh) relative to the vehicle.

Animal Model:	Urinary tract infections (UTIs) model (C3H/HeJ mice)[1]
Dosage:	33.3 mg/kg
Administration:	Intravenous injection, three times a day,
Result:	Achieved 3.0, 2.8, 2.9, and 1.9 $\log_{10}$ reductions in bacterial load relative to the vehicle in the spleen, bladder, liver, and kidney tissues, respectively.

Animal Model:	Neutropenic female BALB/c mice infected with drug-resistant A. baumannii (pharmacokinetic assay)[1]
Dosage:	20, 50, 75, 100 mg/kg
Administration:	Intravenous injection, for a single dose
Result:	Pharmacokinetic profile of Fabimycin.

pharmacokinetic property	AUC_{last} (h•μg/mL)	$T_{1/2}$ (h)	CL (mL/min/kg)	C_{max} (μg/mL)
100 mg/kg	69.8	1.4	23.5	47.3
75 mg/kg	45.4	1.4	26.9	34.6

REFERENCES

[1]. Erica N. Parker, et al. An Iterative Approach Guides Discovery of the FabI Inhibitor Fabimycin, a Late-Stage Antibiotic Candidate with In Vivo Efficacy against Drug-Resistant Gram-Negative Infections. DOI: 10.1021/acscentsci.2c00598.

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