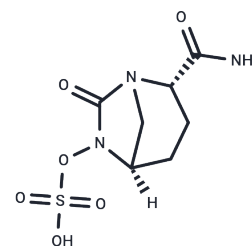


Avibactam free acid

Chemical Properties

CAS No. :	1192500-31-4
Formula:	C ₇ H ₁₁ N ₃ O ₆ S
Molecular Weight:	265.24
Storage:	Store at low temperature Powder: -20°C for 3 years In solvent: -80°C for 1 year <i>Actual storage temperature shall be subject to the COA.</i>



Biological Description

Description	Avibactam free acid is a potent β -lactamase inhibitor exhibiting covalent and reversible properties, capable of inhibiting TEM-1, P99, and CTX-M-15 at nanomolar concentrations. Avibactam free acid and Ceftazidime may be combined for treating urinary tract infections.
Targets(IC50)	Antibacterial, Antibiotic
In vitro	Using TEM-1 as the research subject, the inhibitory effect of Avibactam free acid was characterized by measuring the on-rate (acylation) and off-rate (deacylation) of the enzyme. The results showed that the deacylation dissociation rate was 0.045 min^{-1} , providing potential insights into the deacylation pathway of TEM-1 enzyme. Using nuclear magnetic resonance (NMR) and mass spectrometry (MS), we discovered that the deacylation process regenerates intact Avibactam free acid rather than proceeding via hydrolysis [1].
In vivo	In the mouse model infected with <i>Klebsiella pneumoniae</i> strain Y8, Ceftazidime-Avibactam free acid (0.375 mg/g, subcutaneous injection, every 8 hours for 10 days) exhibited significant antibacterial effects and produced certain therapeutic outcomes [3]. In the neutropenic pneumonia mouse model with <i>Pseudomonas aeruginosa</i> infection, following a single subcutaneous injection of Avibactam free acid (64 mg/kg), the mean estimated terminal-phase half-life in mouse plasma was 0.24 hours [3].

Solubility Information

Solubility	DMSO: 100 mg/mL (377.02 mM), Sonication is recommended. ($< 1 \text{ mg/ml}$ refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween-80+45% Saline: 3.3 mg/mL (12.44 mM), Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.7702 mL	18.8509 mL	37.7017 mL
5 mM	0.754 mL	3.7702 mL	7.5403 mL
10 mM	0.377 mL	1.8851 mL	3.7702 mL
50 mM	0.0754 mL	0.377 mL	0.754 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Ehmann DE, et al. Avibactam is a covalent, reversible, non- β -lactam β -lactamase inhibitor. Proc Natl Acad Sci U S A. 2012 Jul 17;109(29):11663-8.

Livermore DM, et al. Characterization of β -lactamase and porin mutants of Enterobacteriaceae selected with ceftaroline + avibactam (NXL104). J Antimicrob Chemother. 2012 Jun;67(6):1354-8.

Berkhout J, et al. Pharmacokinetics and penetration of ceftazidime and avibactam into epithelial lining fluid in thigh- and lung-infected mice. Antimicrob Agents Chemother. 2015 Apr;59(4):2299-304.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

This product is for Research Use Only · Not for Human or Veterinary or Therapeutic Use

Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481