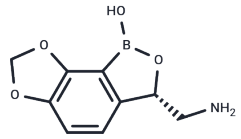
Data Sheet (Cat.No.T39296)

DS86760016

Chemical Properties



CAS No. :	1853176-89-2
Formula:	C9H11BClNO4
Molecular Weight:	243.45
Storage:	Powder: -20°C for 3 years | In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.

Biological Description

Description	DS86760016 is a highly effective inhibitor of leucyl-tRNA synthetase (LeuRS), demonstrating potent activity against multidrug-resistant (MDR) Gram-negative bacteria including Escherichia coli, Klebsiella pneumoniae, and Pseudomonas aeruginosa. Notably, DS86760016 effectively inhibits LeuRS enzymes derived from Escherichia coli, Pseudomonas aeruginosa, and Acinetobacter baumannii, exhibiting IC50 values of 0.38 μM, 0.62 μM, and 0.16 μM, respectively.
Targets(IC50)	Others,Antibacterial
In vitro	DS86760016 demonstrates inhibitory effects on certain Gram-negative bacteria, exhibiting Minimum Inhibitory Concentrations (MICs) between 0.25 to 2 μg/ml. Conversely, its efficacy against Gram-positive bacteria is significantly lower, with an MIC >32 μg/ml. This compound is notably active against both susceptible and Multi-Drug Resistant (MDR) strains of P. aeruginosa, E. coli, and K. pneumoniae, achieving an MIC90 of 2 μg/ml[1].
In vivo	DS86760016, administered subcutaneously at doses ranging from 7.5 to 220 mg/kg every six hours for seven days, demonstrates moderate spontaneous resistance (FSR)[1]. Its pharmacokinetic (PK) profile has been evaluated in the plasma of mice, rats, monkeys, and dogs following intravenous (i.v.) administration, revealing lower plasma clearance rates (CLp) of 11, 29, 5.6, and 4.5 ml/min/kg, respectively. Correspondingly, the plasma half-lives (t1/2) of DS86760016 are 1.9 hours in mice, 1.5 hours in rats, 8.6 hours in monkeys, and 8.3 hours in dogs. These lower clearance rates result in higher plasma exposures, with dose-normalized areas under the curve after i.v. administration (DNAUC IVs) being 1.5, 0.6, 3.7, and 3.0 μg h kg/ml/mg, respectively[1]. In an animal model utilizing immunocompetent female Swiss Webster mice for a urinary tract infection (UTI) model[1], DS86760016 treatment showed that bacteria resistant to it were present in a few animals after one day at doses of 7.5 and 30 mg/kg every six hours; however, no resistance was observed at these doses after seven days. Notably, no resistance was detected at the highest dose of 220 mg/kg every six hours.

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.1076 mL	20.5381 mL	41.0762 mL
5 mM	0.8215 mL	4.1076 mL	8.2152 mL
10 mM	0.4108 mL	2.0538 mL	4.1076 mL
50 mM	0.0822 mL	0.4108 mL	0.8215 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

Purnapatre KP, et al. In Vitro and In Vivo Activities of DS86760016, a Novel Leucyl-tRNA Synthetase Inhibitor for Gram-Negative Pathogens. Antimicrob Agents Chemother. 2018;62(4):e01987-17. Published 2018 Mar 27.
Kumar M, et al. DS86760016, a Leucyl-tRNA Synthetase Inhibitor with Activity against Pseudomonas aeruginosa. Antimicrob Agents Chemother. 2019;63(4):e02122-18. Published 2019 Mar 27.