

MBL-IN-5

Chemical Properties

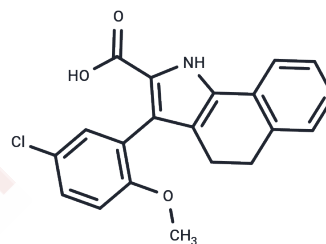
CAS No. : 2876921-34-3

Formula: C₂₀H₁₆ClNO₃

Molecular Weight: 353.80

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	MBL-IN-5 is an inhibitor of metallo-β-lactamase (MBL). It effectively suppresses three clinically significant B1 subfamily MBLs: NDM-1, VIM-1, and IMP-1 with IC ₅₀ values of 0.05 nM, 14 nM, and 21 nM respectively. MBL-IN-5 notably enhances the efficacy of carbapenem antibiotics against MBL-producing clinical strains and, when combined with IPM antibiotics, significantly reduces bacterial load in a thigh infection model.
Targets(IC ₅₀)	Antibacterial, Beta-lactamase
In vitro	MBL-IN-5 (Compound 17u) exhibits strong synergy with Imipenem (IPM) and Meropenem against carbapenem-resistant <i>Klebsiella pneumoniae</i> ATCC BAA-2146 expressing New Delhi Metallo-beta-lactamase-1 (NDM-1) at concentrations of 4-32 μg/mL over 16-18 hours. At 3.12-50 μM, MBL-IN-5 significantly stabilizes NDM-1, causing a positive shift in T _m of approximately 15-20 °C. The compound displays optimal ADME properties with moderate solubility, high permeability, and moderate clearance at concentrations of 1-500 μM. Inhibiting NDM-1 effectively at 0.5-16 μg/mL over 16-18 hours, MBL-IN-5 restores the sensitivity of tested ATCC strains to Meropenem and IPM, and shows high inhibition of NDM-1 expressing Enterobacteriaceae clinical strains when combined with these antibiotics. MBL-IN-5 has greater specificity for MBL over MMP, with IC ₅₀ values for MMP-1, MMP-2, and MMP-9 at >120 μM, 2.9 μM, and 45
In vivo	When used in combination with IPM, MBL-IN-5 (Compound 17u) (20-50 mg/kg, subcutaneous injection, every 8 hours for a total of 3 doses) significantly enhances IPM's effectiveness against NDM-1 expressing, carbapenem-resistant <i>Klebsiella pneumoniae</i> ATCC BAA 2146 in a neutropenic mouse thigh infection model and reduces bacterial load.

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.8265 mL	14.1323 mL	28.2646 mL
5 mM	0.5653 mL	2.8265 mL	5.6529 mL
10 mM	0.2826 mL	1.4132 mL	2.8265 mL
50 mM	0.0565 mL	0.2826 mL	0.5653 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.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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

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