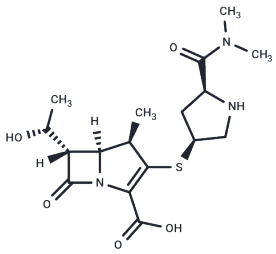
Data Sheet (Cat.No.T0224)

TargetMol

Meropenem

Chemical Properties



CAS No. : 96036-03-2

Formula: C17H25N3O5S

Molecular Weight: 383.46

Storage: Keep away from moisture,Store at low temperature
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	Meropenem (SM 7338) is a synthetic carbapenem antibiotic with broad-spectrum antibacterial activity. It exerts a bactericidal effect by inhibiting the synthesis of peptidoglycan in the bacterial cell wall and is active against a wide range of Gram-positive, Gram-negative, and anaerobic bacteria. Meropenem is active against both susceptible and resistant Neisseria gonorrhoeae (MIC values of 0.02–0.06 mg/mL), Haemophilus influenzae (MIC: 0.03–0.12 mg/mL), and Klebsiella pneumoniae (MIC: 0.015–0.12 mg/mL). Meropenem can be used for constructing bacterial infection models and screening for antimicrobial activity.
Targets(IC50)	Antibacterial,Antibiotic
In vitro	**Methods**: Clinical isolates of NDM-1-producing Escherichia coli ZC-YN3, along with strains producing NDM-5 and NDM-9, were tested against monotherapy with Meropenem or Magnolol, or combination therapy with Meropenem + Magnolol (32 μg/mL) to determine the minimum inhibitory concentration (MIC). **Results**: Meropenem monotherapy MIC: 16 μg/mL (against ZC-YN3); Magnolol monotherapy MIC: >1024 μg/mL (no direct antibacterial activity); Meropenem + Magnolol combination MIC: 4 μg/mL (against ZC-YN3), representing a 4-fold reduction. [1] **Methods**: Human primary alveolar epithelial cells (HPAEpiC) were infected with PAO1 strain after mechanical stretching simulated by the FlexCell system. Drugs (meropenem at 5×MIC and 0.5×MIC) were added 2 hours post-infection. Bacterial load was assessed at 4 and 8 hours post-infection. **Results**: Meropenem effectively reduced bacterial load. [2]
In vivo	**Methods**: C57BL/6J mice were mechanically ventilated and infected with PAO1 strain via tracheal inoculation. Meropenem monotherapy was administered via intraperitoneal injection at 4 hours and 16 hours post-infection. **Results**: Meropenem monotherapy significantly reduced bacterial load in both the lungs and systemic tissues [2].
Kinase Assay	Complementation of SCR7 Inhibition with Puri?ed Ligase IV: Complementation experiment is carried out by adding increasing concentrations of puri?ed Ligase IV/XRCC4 complex (30, 60, and 120 fmol) along with the oligomeric DNA substrates (5' compatible and 5'-5' noncompatible ends) to the SCR7-treatedextracts. Reactions are incubated for 2 h at 25°C. The reaction products are then resolved on 8% denaturing

Kinase Assay	PAGE. The gel is dried and exposed and the signal is detected with a PhosphorImager and analyzed with Multi Gauge (V3.0) software.

Solubility Information

Solubility	DMSO: 100 mg/mL (260.78 mM),Sonication is recommended. Ethanol: < 1 mg/mL (insoluble or slightly soluble), H2O: 5 mg/mL (13.04 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (10.43 mM),Sonication is recommended. *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.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.6078 mL	13.0392 mL	26.0783 mL
5 mM	0.5216 mL	2.6078 mL	5.2157 mL
10 mM	0.2608 mL	1.3039 mL	2.6078 mL
50 mM	0.0522 mL	0.2608 mL	0.5216 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

Liu S, et al. Magnolol restores the activity of meropenem against NDM-1-producing Escherichia coli by inhibiting the activity of metallo-beta-lactamase. Cell Death Discov. 2018 Feb 20;4:28.
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Sun J, Ren S, Yang Y, et al.Betaxolol as a Potent Inhibitor of NDM-1-Positive E. coli That Synergistically Enhances the Anti-Inflammatory Effect in Combination with Meropenem.International Journal of Molecular Sciences.2023, 24 (17): 13399.
Weissfuss C, et al. Adjunctive phage therapy improves antibiotic treatment of ventilator-associated-pneumonia with Pseudomonas aeruginosa. Nat Commun. 2025 May 15;16(1):4500.
Yang Y et al. J Antimicrob Chemother, 1995, 35(1), 75-84.
Drusano GL, et al. Scand J Infect Dis Suppl, 1995, 96, 11-16.
Yokogawa K, et al. Pharm Res, 2001, 18(9), 1320-1326.
Yang K, Li H Z, Zhu X, et al. Rapid Antibiotic Susceptibility Testing of Pathogenic Bacteria Using Heavy Water-Labeled Single-Cell Raman Spectroscopy in Clinical Samples[J]. Analytical chemistry. 2019 May 7;91(9):6296-6303.

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