Product Data Sheet

Product Name: Closthioamide
Cat. No.: GC32291

Chemical Properties

Cas. No.	1227367-59-0		
SMILES	S=C(C1=CC=C(O)C=C1)NCCC(NCCC(NCCCNC(CCNC(CCNC(C2=CC=C(O)C=C2)=S)=S)=S)=S)=S		
Formula	$C_{29}H_{38}N_6O_2S_6$	M.Wt	695.04
Solubility	Soluble in DMSO	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Closthioamide		

Protocol

Cell experiment:

The MIC is determined for the laboratory strains as follows. The assays are performed in sterile 96-well polystyrene microplates in 200 mL of cation-adjusted Mueller-Hinton (MH) broth. A serial dilution of the compound to test is made in 100 mL of medium and inoculated with 100 mL of fresh cell culture containing ~105 cfu/mL and incubated at 37°C for 20 h. The MIC is defined as the lowest concentration of antibiotic that inhibit visible growth[1].

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References:

[1]. Chiriac AI, et al. Mode of action of closthioamide: the first member of the polythioamide class of bacterial DNA gyrase inhibitors. J AntimicrobChemother. 2015Sep;70(9):2576-88.
[2]. Lincke T, et al. Closthioamide: an unprecedented polythioamide antibiotic from the strictly anaerobic bacterium Clostridium cellulolyticum.Angew Chem Int Ed Engl. 2010 Mar 8;49(11):2011-3.

Background

Closthioamide is a potent inhibitor of bacterial DNA gyrase and highly active against Ec, MRSA, VRE and Mv), with MICs of 9.00 μM, 0.58 μM, 0.58 μM and 72.03 μM respectively.

Closthioamide is a potent inhibitor of bacterial DNA gyrase, isolated from the strictly anaerobic banterium Clostridium cellulolyticum and belongs to a new class of natural products[1]. In a standardized antimicrobial assay, it is found that closthioamide is highly active against a pathogenic, methicillin-resistant Staphylococcus aureus (MRSA) strain with a minimum inhibitory concentration (MIC) of 0.4 μg/mL-1 (0.58 μM). Closthioamide is even active against vancomycin-resistant Enterococcus faecalis (VRE) with the same low MIC value, and is thus significantly more potent against these bacteria than ciprofloxacin, the standard drugused against VRE, with remarkable strain selectivity. Furthermore, in a standardized cytotoxicity assay, closthioamide shows moderate antiproliferative and cytotoxic effects[2].

[1]. Chiriac AI, et al. Mode of action of closthioamide: the first member of the polythioamide class of bacterial DNA gyrase inhibitors. J AntimicrobChemother. 2015Sep;70(9):2576-88. [2]. Lincke T, et al. Closthioamide: an unprecedented polythioamide antibiotic from the strictly anaerobic bacterium Clostridium cellulolyticum.Angew Chem Int Ed Engl. 2010 Mar 8;49(11):2011-3.