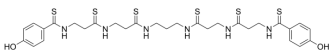
Closthioamide

Cat. No.:	HY-101472
CAS No.:	1227367-59-0
Molecular Formula:	$C_{29}H_{38}N_6O_2S_6$
Molecular Weight:	695.04
Target:	Bacterial
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	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.
IC_{50} & Target	Bacterial DNA gyrase[1]. MIC: 9.00 μM (Ec), 0.58 μM (MRSA), 0.58 μM (VRE), 72.03 μM (Mv)[2].
In Vitro	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]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	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]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA