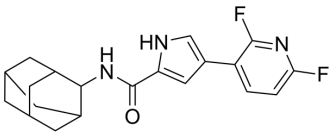
MmpL3-IN-1

Cat. No.:	HY-150967
CAS No.:	2290534-93-7
Molecular Formula:	$C_{20}H_{21}F_2N_3O$
Molecular Weight:	357.4
Target:	Bacterial
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

MmpL3-IN-1 (compound 32) is a potent Mycobacterial membrane protein large 3 (MmpL3) inhibitor. MmpL3-IN-1 has anti-tuberculosis activity with the MIC<0.016 μg/mL in M. tuberculosis and can be used in studies of drug-resistant tuberculosis[1].

In Vitro

MmpL3-IN-1 (compound 32) (0.26-64 μg/mL, 2-7days) has potent anti-M. tuberculosis activity with the MIC value of less than 0.016 μg/mL and with almost non-toxic to Vero cells[1].

MmpL3-IN-1 has good microsomal stability and little inhibition of hERG K^+ channels with the IC_{50} value of more than 30 μM [1].

MmpL3-IN-1 (0.0625-1 μg/mL, 16 h) can inhibit TMM transport by targeting MmpL3, thereby affecting the formation of the cell wall of M. tuberculosis[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	Vero cells
Concentration:	0.26-64 μg/mL
Incubation Time:	48 hours
Result:	Inhibited cell viability with an IC_{50} value of 35.3 μg/mL.

Western Blot Analysis[1]

Cell Line:	M. tuberculosis H37Rv mc^2 6206
Concentration:	0.0625-1 μg/mL
Incubation Time:	16 hours
Result:	Resulted in the accumulation of alginate monomycin (TMM) expression and reduced cell wall-bound mycolic acid methyl esters (MAMEs) in a dose-dependent manner. Reduced synthesis of alginate dimycolate (TDM), together with accumulation of free mycolate at high concentration.

In Vivo

MmpL3-IN-1 (compound 32) (oral gavage, 100 mg/kg, 5 days per week, 30 days) has effective anti-tuberculosis activity in SPF

BALB/c female mice with H37Rv[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	SPF BALB/c female mice with H37Rv[1]
Dosage:	100 mg/kg
Administration:	Oral gavage; 5 days per week; 30 days
Result:	Showed a 2.0 log CFU reduction of H37Rv in lung colony forming units.

Animal Model:	BALB/c mouse (female) weighing 20-25 g[1]
Dosage:	
Administration:	100 mg/kg p.o. or 10 mg/kg i.v. ; 0-24 hours
Result:	b>The pharmacokinetic parameters of MmpL3-IN-1 (compound 32)

Parameter	iv, 10 mg/kg	po, 100 mg/kg
$t_{1/2}$(h)	7.37	7.48
C_{max} (ng/mL)	5105	211
T_{max}(h)	0.03	0.5
AUC_{0-t}(h•ng/mL)	2475	1625
MRT_{0-t}(h•ng/mL)	2.00	8.69
V (mL/kg)	42067	-
CL (mL/h/kg)	3958	-
F%	-	6.6

REFERENCES

[1]. Hongyi Zhao, et al. Design, Synthesis, and Biological Evaluation of Pyrrole-2-carboxamide Derivatives as Mycobacterial Membrane Protein Large 3 Inhibitors for Treating Drug-Resistant Tuberculosis. J Med Chem. 2022 Aug 1.

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