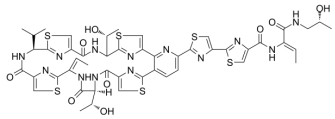
Micrococcin P1

Cat. No.:	HY-125728
CAS No.:	67401-56-3
Molecular Formula:	$C_{48}H_{49}N_{13}O_9S_6$
Molecular Weight:	1144.37
Target:	Bacterial; Parasite; HCV
Pathway:	Anti-infection
Storage:	Powder -20°C 3 years In solvent -80°C 6 months -20°C 1 month



BIOLOGICAL ACTIVITY

Description	Micrococcin P1 is a macrocyclic peptide antibiotic and is a potent hepatitis C virus (HCV) inhibitor with an EC_{50} range of 0.1-0.5 μM[1]. Micrococcin P1 has in vitro antibacterial activity against Gram-positive bacterial strains. The MIC values of Micrococcin P1 against ***S. aureus*** 1974149, ***E. faecalis*** 1674621 and ***S. pyogenes*** 1744264 are 2 μg/mL, 1 μg/mL and 1 μg/mL, respectively[2]. Micrococcin P1 is also a potent inhibitor of the malaria parasite Plasmodium falciparum[3].
IC_{50} & Target	HCV[1]; Bacterial[2]; Parasite[3]
In Vitro	Dose-response assays reveales Micrococcin P1 to be very potent with a minimal inhibitory concentration (MIC) of 32-63 nM. Cytotoxicity assays reveales no significant impairment on cell line growth (<10% inhibition at 30 mM) over a 40 h period for both the hepatic cell line HepG2 and the monocytic cell line THP-1, leading to a selectivity index greater than 500. Also investigats the intracellular activity of Micrococcin P1, it is active against GFP-expressing M. tuberculosis H37Rv growing inside RAW 264.7 macrophages with an IC_{80} of about 1 mM with potency comparable with that of isoniazid[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Lee M, et al. Micrococcin P1, a naturally occurring macrocyclic peptide inhibiting hepatitis C virus entry in a pan-genotypic manner. Antiviral Res. 2016 Aug;132:287-95.

[2]. Akasapu S, et al. Total synthesis of micrococcin P1 and thiocillin I enabled by Mo(vi) catalyst. Chem Sci. 2018 Dec 3;10(7):1971-1975.

[3]. Carnio MC, et al. Pyridinyl polythiazole class peptide antibiotic micrococcin P1, secreted by foodborne Staphylococcus equorum WS2733, is biosynthesized nonribosomally. Eur J Biochem. 2001 Dec;268(24):6390-401.

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

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