Siamycin I

Cat. No.:	HY-P2200
CAS No.:	164802-68-0
Molecular Formula:	$C_{97}H_{131}N_{23}O_{26}S_4$
Molecular Weight:	2163.48
Target:	HIV; Antibiotic
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description	Siamycin I (BMY-29304), a 21-residue tricyclic peptide, is a secondary metabolite in actinomycetes. Siamycin I is a HIV fusion inhibitor with ED_{50}s of 0.05 to 5.7 μM for acute HIV type 1 (HIV-1) and HIV-2 infections. Siamycin I inhibits the gelatinase and gelatinase biosynthesis-activating pheromone (GBAP) signaling via the FsrC-FsrA two-component regulatory system in a noncompetitive manner. Siamycin I suppresses the expression of both fsrBDC and gelE-sprE transcripts. Siamycin I, a lasso peptide, interacts with lipid II and inhibits cell wall biosynthesis. Siamycin I, an antibiotic, has the potential for enterococcal infections research[1][2][3][4].	
IC_{50} & Target	HIV-1	HIV-2
In Vitro	Siamycin I slightly inhibits the growth of E. faecalis at a concentration of 1 μM (80% growth 5 h after inoculation) and completely inhibits the growth at a concentration of 5 μM (no growth 12 h after inoculation)[3]. siamycin I (0-1 μM; 24 h) slightly inhibits biofilm formation at a concentration of 0.25 μM, and the inhibitory effect is marked at concentrations higher than 0.5 μM[3]. Siamycin I inhibits fusion between C8166 cells and CEM-SS cells chronically infected with HIV (ED_{50}=0.08 μM) but has no effect on Sendai virus-induced fusion or murine myoblast fusion[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.	

REFERENCES

[1]. Pikyee Ma, et al. Anti-HIV siamycin I directly inhibits autophosphorylation activity of the bacterial FsrC quorum sensor and other ATP-dependent enzyme activities. FEBS Lett. 2011 Sep 2;585(17):2660-4.

[2]. Stephanie Tan, et al. The Lasso Peptide Siamycin-I Targets Lipid II at the Gram-Positive Cell Surface. ACS Chem Biol. 2019 May 17;14(5):966-974.

[3]. Jiro Nakayama, et al. Siamycin attenuates fsr quorum sensing mediated by a gelatinase biosynthesis-activating pheromone in Enterococcus faecalis. J Bacteriol. 2007 Feb;189(4):1358-65.

[4]. M Tsunakawa, et al. Siamycins I and II, new anti-HIV peptides: I. Fermentation, isolation, biological activity and initial characterization. J Antibiot (Tokyo). 1995 May;48(5):433-4.

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

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