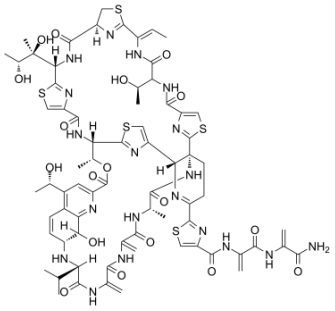
Siomycin A

Cat. No.:	HY-P1687
CAS No.:	12656-09-6
Molecular Formula:	$C_{71}H_{81}N_{19}O_{18}S_5$
Molecular Weight:	1648.84
Target:	Bacterial; Apoptosis
Pathway:	Anti-infection; Apoptosis
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Siomycin A is a thiopeptide antibiotic and is a Forkhead box M1(FOXM1) selective inhibitor without affecting other members of the Forkhead box family. Siomycin A has anti-tumor and promotes apoptosis[1][2].
IC_{50} & Target	Forkhead box M1(FOXM1)[1]

In Vitro

Siomycin A (0-10 μM; 24-72 hours; K562, MCF7 and MiaPaCa-2 cells) treatment markedly reduces cell viability in a dose-dependent and a time-dependent association in K562, MCF7 and MiaPaCa-2 cells. Among the three cell lines, the IC_{50} of the human leukemia K562 cells is the lowest at 6.25 μM at 24 h, while that for the human pancreatic cancer MiaPaCa-2 cells is 6.38 μM. However, the IC_{50} of the human pancreatic cancer MiaPaCa-2 cells at 48 and 72 h are the lowest of the three cell lines, which are 0.76 and 0.54 μM, respectively[1].

Siomycin A (0-10 μM; MiaPaCa-2 cells) treatment has potent proapoptotic effect in MiaPaCa-2 cells[1].

Siomycin A (0-10 μM; 24 hours; MiaPaCa-2 cells) treatment significantly reduces the expression levels of MMP-2, MMP-9 and α-tubulin protein in the MiaPaCa-2 cells[1].

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

Cell Viability Assay[1]

Cell Line:	K562, MCF7 and MiaPaCa-2 cells
Concentration:	0 μM, 0.625 μM, 1.25 μM, 2.5 μM, 5 μM or 10 μM
Incubation Time:	24, 48 and 72 hours
Result:	Cell viability was markedly reduced in a dose-dependent and a time-dependent association.

Apoptosis Analysis[1]

Cell Line:	MiaPaCa-2 cells
Concentration:	0 μM, 0.625 μM, 1.25 μM, 2.5 μM, 5 μM or 10 μM
Incubation Time:	
Result:	Promoted apoptosis of MiaPaCa-2 cells.

Western Blot Analysis[1]

Cell Line:	MiaPaCa-2 cells
Concentration:	0 μM, 0.625 μM, 1.25 μM, 2.5 μM, 5 μM or 10 μM
Incubation Time:	24 hours
Result:	The expression levels of MMP-2 and MMP-9 protein in the MiaPaCa-2 cells were significantly reduced in the 2.5, 5 and 10 μM groups.

In Vivo

Siomycin A (1 μM; subcutaneous injection; for 4 weeks; male Balb/c nude mice) pretreatment decreases tumour growth in an in vivo mouse model[2].

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Animal Model:	Four- to five-week old male Balb/c nude mice with IOMM-LEE cells[2]
Dosage:	1 μM-pretreated IOMM-Lee cells
Administration:	Subcutaneous injection; for 4 weeks
Result:	Decreased tumour growth in an in vivo mouse model.

REFERENCES

[1]. Wang B, et al. Effects and mechanism of siomycin A on the growth and apoptosis of MiaPaCa-2 cancer cells. Oncol Lett. 2019 Sep;18(3):2869-2876.

[2]. Kim H, et al. Forkhead box M1 (FOXM1) transcription factor is a key oncogenic driver of aggressive human meningioma progression. Neuropathol Appl Neurobiol. 2019 Jun 9.

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