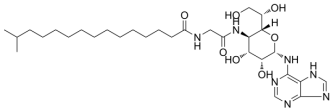
Spicamycin

Cat. No.:	HY-127130
CAS No.:	87099-85-2
Molecular Formula:	$C_{30}H_{51}N_7O_7$
Molecular Weight:	621.77
Target:	Bcl-2 Family; Apoptosis; Fungal; Antibiotic
Pathway:	Apoptosis; Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Spicamycin, an adenine nucleoside antibiotic with antifungal and antitumor activities. Spicamycin is also a potent inducer of differentiation of myeloid leukemia cells. Spicamycin induces apoptosis in NB4 cells via down-regulation of Bcl-2 expression and modulation of PML protein[1][2].

IC_{50} & Target

Bcl-2

In Vitro

Spicamycin (10-160 ng/mL; 0-5 d) potently inhibits cell proliferation and viability of NB4, NKM-1, and HL-60 cells[1].
Spicamycin (20 ng/mL, 80 ng/mL; 48 h) induces apoptosis in NB4, HL-60 and NKM-1 cells[1].
Spicamycin (20 ng/mL, 40 ng/mL; 36 h) down-regulates the Bcl-2 expression in NB4 cells[1].
Spicamycin (2.5-640 ng/mL) shows anti-microbial activity against Saccharomyces cerevisiae ATCC 9763, Candida utilis IFO 0396, and Trichophyton mentagrophytes with MIC values of 25μg/mL, 25μg/mL, and 1.56 μg/mL, respectively[2].

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

Cell Viability Assay[1]

Cell Line:	NB4, HL-60, NKM-1, NOP-1 and Daudi cells
Concentration:	10 ng/mL, 20 ng/mL, 40 ng/mL, 80 ng/mL, 160 ng/mL
Incubation Time:	0, 1, 2, 3, 4, and 5 days or 72 hours
Result:	Completely inhibited cell proliferation and viability of NB4 and NKM-1 at 40 ng/mL, of HL-60 at 80 ng/mL, but failed to inhibit NOP-1 and Daudi cells at higher dose of 160 ng/mL. Inhibited cells viability of IC_{50}s of 18.2 ng/mL, 28.6 ng/mL, 23.8 ng/mL, 74.9 ng/mL, and 37.4 ng/mL, respectively.

Western Blot Analysis[1]

Cell Line:	NB4 cells
Concentration:	20 ng/mL, 40 ng/mL
Incubation Time:	36 hours
Result:	Reduced the Bcl-2 expression without affecting Bcl-xL and Bax expression.

In Vivo

Spicamycin (0.125-2 mg/kg; i.p.; once daily for 9 d) shows anti-tumor activity against P388 Mouse Leukemia model[2].
Spicamycin shows an LD_{50} value of 40 mg/kg (i.p.) in mice[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	P388 Mouse Leukemia model[2]
Dosage:	0.125, 0.25, 0.5, 1.0, and 2.0 mg/kg
Administration:	Intraperitoneal injection; once daily for 9 days
Result:	Showed no biotoxicity at dose below 2.0 mg/kg.

REFERENCES

[1]. Zhang WJ, et al. Spicamycin and KRN5500 induce apoptosis in myeloid and lymphoid cell lines with down-regulation of bcl-2 expression and modulation of promyelocytic leukemia protein. Jpn J Cancer Res. 2000 Jun;91(6):604-11.

[2]. Hayakawa Y, et al. Spicamycin, a new differentiation inducer of mouse myeloid leukemia cells (Ml) and human promyelocytic leukemia cells (HL-60)[J]. Agricultural and biological chemistry, 1985, 49(9): 2685-2691.

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