Data Sheet (Cat.No.T22262)

TargetMol
A DRUG SCREENING EXPERT

Ansamitocin p-3

Chemical Properties

CAS No.:	66584-72-3
Formula:	C32H43ClN2O9
Molecular Weight:	635.14
Appearance:	N/A
Storage:	0-4℃ for short term (days to weeks), or -20℃ for long term (months).

Biological Description

Description	Ansamitocin p-3 (Maytansinol isobutyrate, NSC292222) is a potent tubulin polymerization inhibitor with IC50 of 3.4 μM.
Targets(IC_{50})	Others: None
In vitro	Ansamitocin p-3 completely inhibits the polymerization of tubulin isolated from bovine brains at 5 μM, but in contrast to VCR, Ansamitocin p-3 does not lead to the aggregation of tubulin at a high concentration of 80 μM. Ansamitocin p-3 also potently depolymerizes the polymerized tubulin at 16 μM (IC50 = 3.8 μM). The morphological alteration of AC cells from fibroepithelioid to a glial cell type which were caused by the exposure to a certain concentration of dibutyryl cyclic adenosine 3′:5′-monophosphate were blocked by the addition of Ansamitocin p-3. In addition, Ansamitocin p-3 treatment causes the well-defined network of cytoplasmic microtubules of A31 cells rapidly dispersed at 16 nM. Short-term Ansamitocin p-3 treatment also inhibits the synthesis of DNA in A31 cells or KB cells. These results confirm that Ansamitocin p-3 acts by interfering with the microtubule assembly system, thus resulting in an inhibition of mitotic spindle fiber formation and, ultimately, cytokilling. [1] Ansamitocin p-3 displays potent cytotoxicity against A-549, HT-29, and MCF-7 cells in a dose-dependent manner with ED50 of 4×10-7, 4×10-7, and 2×10-6 μg/mL, respectively. [2] Ansamitocin p-3 also exhibits cytotoxicity against HCT-116 cells with a much low EC50 of 0.081 nM. [3] Ansamitocin p-3 enhances the effect of radiation both in Drosophila cells and human cancer cells in a p53 dependent manner. [4]
In vivo	The treatment of Ansamitocin p-3 (>1 μg) significantly suppresses the growth of leukemia SN36, and induces an increased arrest in metaphase of P388 leukemia cells. Ansamitocin p-3 treatment (25 μg/kg/day) significantly prolongs the survival time of mice bearing i.p. B16 melanoma by 130%. Ansamitocin p-3 treatment also significantly prolongs the survival time of mice bearing Ehrlich ascites carcinoma, P815 mastocytoma, and Sarcoma 180, while slightly prolongs the survival time of mice bearing ascites MOPC-104E myeloma, leukemia C1498 and leukemia L1210. [1]
Kinase Assay	Polymerization inhibition assay: After the addition of 1M Tris buffer (pH 8.4, for blank) or 100 μL of various concentrations of Ansamitocin p-3 solution (GTP minus MES buffer), to 400 μL of bovine tubulin solution (1 mg/mL in cold MES buffer), maintained at 0 °C for 10 to 15 minutes, the mixture is warmed in a water bath at 37 °C for 30 to 60 minutes. Tubulin polymerization is followed by an increase in turbidity of the mixture during warming. The turbidity measurement is performed at 460 nm with a Hitachi type 101 spectrophotometer.

Cell Research	Cell lines: A31 and KB. Concentrations: Dissolved in DMSO, final concentrations ~10 μM. Incubation Time: ~24 hours. Method: After synchronized, cells are exposed to various Ansamitocin p-3 concentrations for ~24 hours. Cells are labeled with [3H]thymidine (5 Ci/mM, 1 μCi/mL) in 1 mL medium. After pulse-labeling at 37 °C for 1 hour, the cells on coverslips are fixed with methanol:acetic acid (3:1). The acidsoluble fraction is washed out from the cells, and a liquid scintillation counter is used to determine the radio activity of each coverslip.
Animal Research	Animal Models: C57BL/6 mice bearing C1498, or B16 cells, Female DBA/2 mice bearing L1210, P815, or P388 cells, BALB/c mice bearing MOPC-104E cells, and ICR mice bearing sarcoma 180 and EAC. Dosages: about 200 μg/kg. Administration: Administered i.v. or i.p. daily.

Solubility Information

Solubility	DMSO: 100 mg/ml (157.45 mM) Ethanol: 55 mg/ml (86.6 mM) (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.574 mL	7.872 mL	15.745 mL
5 mM	0.315 mL	1.574 mL	3.149 mL
10 mM	0.157 mL	0.787 mL	1.574 mL
50 mM	0.031 mL	0.157 mL	0.315 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. The storage conditions and period of the stock solution: - 80 ℃ for 6 months; - 20 ℃ for 1 month. Please use it as soon as possible.

Reference

1. Ootsu K, et al. Cancer Res, 1980, 40(5), 1707-1717.
2. Suwanborirux K, et al. Experientia, 1990, 46(1), 117-120.
3. Young DH, et al. J Biomol Screen, 2006, 11(1), 82-89.
4. Edwards A, et al. Dis Model Mech, 2011, 4(4), 496-503.
5. Jubina B Venghateri, et al. PLoS One. 2013 Oct 4;8(10):e75182.

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