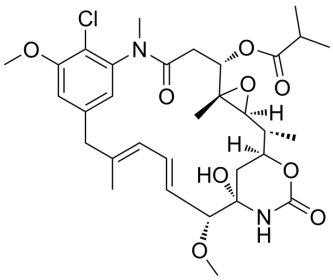
Ansamitocin P-3



Cat. No.: HY-15739

CAS No.: 66584-72-3

Molecular Formula: $C_{32}H_{43}ClN_2O_9$

Molecular Weight: 635.14

Target: Microtubule/Tubulin; ADC Cytotoxin; Bacterial; Antibiotic

Pathway: Cell Cycle/DNA Damage; Cytoskeleton; Antibody-drug Conjugate/ADC Related; Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year

SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (157.45 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	1.5745 mL	7.8723 mL	15.7446 mL
5 mM	0.3149 mL	1.5745 mL	3.1489 mL
10 mM	0.1574 mL	0.7872 mL	1.5745 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (3.94 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (3.94 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.94 mM); Clear solution

BIOLOGICAL ACTIVITY

Description Ansamitocin P-3 (Antibiotic C 15003P3) is a microtubule inhibitor. Ansamitocin P-3 is a macrocyclic antitumor antibiotic.

IC_{50} & Target Maytansinoids

In Vitro Ansamitocin P-3 (Antibiotic C 15003P3) potently inhibits the proliferation of MCF-7, HeLa, EMT-6/AR1 and MDA-MB-231 cells

in culture with a half-maximal inhibitory concentration of 20±3, 50±0.5, 140±17, and 150±1.1 pM, respectively. Further, Ansamitocin P3 is found to bind to purified tubulin in vitro with a dissociation constant (K_d) of 1.3±0.7 μM. The binding of Ansamitocin P3 induces conformational changes in tubulin. Ansamitocin P3 inhibits the proliferation of MCF-7, HeLa, EMT-6/AR1 and MDA-MB-231 cells in culture in a concentration dependent manner. Flow cytometric analysis of PI-stained cells suggests that Ansamitocin P3 inhibits the cell cycle progression of MCF-7 cells in G2/M phase. For example, 26, 50 and 70% of the cells are found to be in G2/M phase in the absence and presence of 50 and 100 pM Ansamitocin P3, respectively[2].

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

PROTOCOL

Cell Assay [2]

MCF-7, EMT-6/AR1, HeLa and MDA-MB-231 cells are seeded in 96 well plates. Subsequently, cells are incubated with vehicle (0.1% DMSO) or different concentrations (1-1000 pM) of Ansamitocin P3 for 48 h in MCF-7 cells and 24 h for EMT-6/AR1, HeLa and MDA-MB-231 cells, respectively. The half maximal inhibitory concentration of cell proliferation (IC_{50}) for Ansamitocin P3 is determined by sulforhodamine B assay. Four independent experiments are carried out in MCF-7 cells and three independent sets of experiments are performed in EMT-6/AR1, HeLa and MDA-MB-231 cells[2].

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

CUSTOMER VALIDATION

- Cancer Immunol Res. 2023 Mar 15;CIR-22-0483.
- J Pharm Biomed Anal. 2017 Jan 12;137:170-177.
- Arch Cancer Res. 2023 Jan 30.
- Health Science Journal. August 31, 2021.
- Health Sci J. (2021): 1-8.

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REFERENCES

[1]. Kiso T, et al. Screening for microtubule-disrupting antifungal agents by using a mitotic-arrest mutant of Aspergillus nidulans and novel action of phenylalanine derivatives accompanying tubulin loss. Antimicrob Agents Chemother. 2004 May;48(5):1739-48

[2]. Venghateri JB, et al. Ansamitocin P3 depolymerizes microtubules and induces apoptosis by binding to tubulin at thevinblastine site. PLoS One. 2013 Oct 4;8(10):e75182.

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