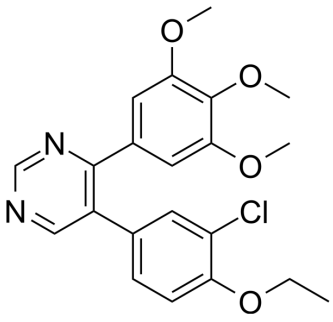
Tubulin polymerization-IN-4

Cat. No.:	HY-144786
CAS No.:	2835559-00-5
Molecular Formula:	$C_{21}H_{21}ClN_2O_4$
Molecular Weight:	400.86
Target:	Microtubule/Tubulin; Apoptosis
Pathway:	Cell Cycle/DNA Damage; Cytoskeleton; Apoptosis
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Tubulin polymerization-IN-4 is a potent tubulin polymerization inhibitor with IC_{50} value of 4.6 μM. Tubulin polymerization-IN-4 can disrupt tubulin polymerization and vasculature, arrest the cell cycle at the G2/M phase, induce apoptosis, and suppress clonogenesis and migration in HeLa cells. Tubulin polymerization-IN-4 can be used for researching cervical cancer [1].
IC_{50} & Target	IC_{50}: 4.6 μM (tubulin)[1]

In Vitro

Tubulin polymerization-IN-4 (compound 9j) (0-1 μM; 48 hours) exhibits sub-micromolar inhibitory activities against HeLa, SiHa and MS751[1].

Tubulin polymerization-IN-4 (3, 6 and 12.5 μM; 0-20 min) inhibits tubulin polymerization in a concentration-dependent manner with the inhibition percentages of 39%, 54%, and 77% at 3, 6 and 12.5 μM[1].

Tubulin polymerization-IN-4 (1-100 μM; 2 hours) inhibits the formation of EBI-β-tubulin adduct in a concentration-dependent manner[1].

Tubulin polymerization-IN-4 (0.2 μM; 1 and 2 hours) disrupts the HUVEC-formed vascular tube[1].

Tubulin polymerization-IN-4 (0.1-0.4 μM; 24 hours) increases cell distribution to the G2/M phase in a concentration-dependent manner[1].

Tubulin polymerization-IN-4 (0.1-0.4 μM; 24 hours) induces apoptosis of HeLa cells[1].

Tubulin polymerization-IN-4 (20, 50, 100 nM; 14 days) reduces new colony formation and suppresses HeLa cell growth for 14 days in a dose-dependent manner[1].

Tubulin polymerization-IN-4 (0.1, 0.2 and 0.4 μM; 24 hours) effectively inhibits the migration of HeLa cells in a concentration-dependent manner[1].

Tubulin polymerization-IN-4 (0-200 μM; 24 hours) exhibits good renal safety profile, with IC_{50} of 188 ± 16 μM in HK-2 cells[1].

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

Cell Proliferation Assay

Cell Line:	HeLa, SiHa and MS751[1]
Concentration:	0-1 μM
Incubation Time:	48 hours
Result:	Exhibited sub-micromolar inhibitory activities against HeLa, SiHa and MS751 with IC_{50}s of 0.09 ± 0.02 μM, 0.15 ± 0.01 μM, 0.11 ± 0.03 μM.

Cell Cycle Analysis

Cell Line:	HeLa cells[1]
Concentration:	0.1, 0.2 and 0.4 μM
Incubation Time:	24 hours
Result:	Increased cell distribution to the G2/M phase in a concentration-dependent way, arresting 24.7%, 47.6% and 71.7% of the cells in this phase at 0.1, 0.2 and 0.4 μM, respectively.

Apoptosis Analysis

Cell Line:	HeLa cells[1]
Concentration:	0.1, 0.2 and 0.4 μM
Incubation Time:	24 hours
Result:	Induced 35.9%, 66.4% and 84.4% of cell population undergoing apoptosis at 0.1 μM, 0.2 μM, 0.4 μM, respectively.

Cell Cytotoxicity Assay

Cell Line:	HK-2 cells[1]
Concentration:	0-200 μM
Incubation Time:	24 hours
Result:	Exhibited good renal safety profile, with IC_{50} of 188 ± 16 μM in HK-2 cells.

In Vivo

Tubulin polymerization-IN-4 (100-1000 mg/kg; IP, single) exhibits extremely low toxicity with LD_{50} over 1000 mg/kg[1].
Tubulin polymerization-IN-4 (30 and 60 mg/kg; IP; daily for 21 days) inhibits the tumor growth, with TGI of 35% and 58% at dosing 30 and 60 mg/kg[1].
Tubulin polymerization-IN-4 (30 mg/kg; IP; single) presents the modest pharmacokinetic properties[1].
Pharmacokinetic Parameters of Tubulin polymerization-IN-4 in ICR mice[1].

	IP (30 mg/kg)
$T_{1/2}$ (h)	1.56 ± 0.28
T_{max} (h)	0.25
C_{max} (μg/L)	6215 ± 308
AUC_{0-t} (μg/L·h)	5609 ± 347
$AUC_{0-\infty}$ (μg/L·h)	5940 ± 347
V_Z/F (L/kg)	11.35 ± 1.29
CL_Z/F (L/h/kg)	5.05 ± 0.91

MRT (h)	1.77 ± 0.43

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

REFERENCES

[1]. Huo Z, Liu K, Zhang X, Liang Y, Sun X. Discovery of pyrimidine-bridged CA-4 CBSIs for the treatment of cervical cancer in combination with cisplatin with significantly reduced nephrotoxicity. Eur J Med Chem. 2022;235:114271.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA