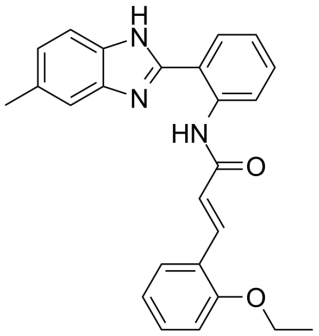
Tubulin polymerization-IN-26

Cat. No.:	HY-149020
CAS No.:	2490291-68-2
Molecular Formula:	$C_{25}H_{23}N_3O_2$
Molecular Weight:	397.47
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-26 (compound 12h) can inhibit the polymerization of microtubulin by binding to the colchicine binding site of microtubulin with an IC_{50} value of 4.64 μM. Tubulin polymerization-IN-26 can induce apoptosis and inhibit cell metastasis or migration, and can be used as a potential compound for lung cancer research[1].

In Vitro

Tubulin polymerization-IN-26 (compound 12h) (0.27-30 μM, 48 hours) shows potent cytotoxic activity against lung cancer cells[1].

Tubulin polymerization-IN-26 (compound 12h) (0.1 μM,0.25 μM,0.5 μM, 24 hours) induces cell apoptosis in a dose-dependent manner by promoting ROS production in cells [1].

Tubulin polymerization-IN-26 (compound 12h) (0.1 μM,0.25 μM,0.5 μM, 24 hours) arrests the cell cycle in G2/M phase[1].

Tubulin polymerization-IN-26 (compound 12h) (0.1 μM,0.25 μM,0.5 μM, 24 hours) inhibits microtubule protein polymerization[1].

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

Cell Cytotoxicity Assay[1]

Cell Line:	Human non-small cell lung cancer A549, Human triple negative breast cancer MDA-MB-231, Mouse melanoma B16-F10, Human breast cancer BT-474, Mouse triple negative breast cancer 4 T1, Rat kidney epithelial cell line NRK-52E
Concentration:	0.27-30 μM
Incubation Time:	48 hours
Result:	Showed cytotoxic activity against A549, MDA-MB-231, B16-F10, BT-474, 4 T1, NRK-52E with IC_{50} value of 0.29 μM,1.48 μM,1.25 μM,0.42 μM,0.49 μM,1.58 μM respectively.

Apoptosis Analysis[1]

Cell Line:	Human non-small cell lung cancer A549
Concentration:	0.1 μM,0.25 μM,0.5 μM
Incubation Time:	24 hours
Result:	Changed cell nucleus from normal form to micronucleus with the concentration increasing.

Cell Cycle Analysis[1]

Cell Line:	Human non-small cell lung cancer A549
Concentration:	0.1 μM,0.25 μM,0.5 μM
Incubation Time:	24 hours
Result:	Resulted in more G2/M phase cells production which percentage were 17.6%, 29% and 50.3%, corresponding to concentrations of 0.1 μM, 0.25 μM, and 0.5 μM, respectively. Resulted in even fewer G0/G1 phase cells production which percentage were 41. 1%, 21.2%, and 4.9%, corresponding to concentrations of 0.1 μM, 0.25 μM, and 0.5 μM, respectively.

REFERENCES

[1]. Kavitha Donthiboina et al. Synthesis and biological evaluation of substituted N-(2-(1H-benzo[d]imidazol-2-yl)phenyl)cinnamides as tubulin polymerization inhibitors. Bioorg Chem. 2020 Oct;103:104191.

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