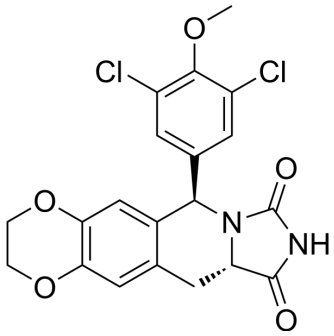
Tubulin polymerization-IN-41

Cat. No.:	HY-152143
CAS No.:	2804026-81-9
Molecular Formula:	$C_{20}H_{16}Cl_2N_2O_5$
Molecular Weight:	435.26
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-41 is a potent tubulin polymerization inhibitor with the IC_{50} of 2.61 μM. Tubulin polymerization-IN-41 targets the Colchicine-binding site of tubulin. Tubulin polymerization-IN-41 has anticancer effects[1].

In Vitro

Tubulin polymerization-IN-41 (compound C3) displays remarkable antiproliferative activities with IC_{50} values of 6.3 nM, 9.2 nM, 8.3 nM, and 8.7 nM for K562, MCF-7, HT29, and HCT116 cells, respectively. Additionally, Tubulin polymerization-IN-41 shows marked activity against Paclitaxel-resistant MCF-7 cells and A549 cells[1].

Tubulin polymerization-IN-41 (compound C3; 5-20 nM) downregulates the expression of acetyl-α-tubulin (Ac-α-tubulin) and upregulated the expression of detyrosinated-α-tubulin (DeY-α-tubulin) in a concentration-dependent manner[1].

Tubulin polymerization-IN-41 (compound C3; 5-20 nM; 24 hours) could arrest cancer cells in the G2/M phase, and induces MCF-7 cells apoptosis in a concentration-dependent manner[1].

Tubulin polymerization-IN-41 (compound C3; 5-20 nM; 24 hours) reduces Ser216 phosphorylation, resulting in cdc2 Tyr15 dephosphorylation and Thr161 phosphorylation, which ultimately leads to the activation of subsequent cdc2/cyclin B1 complex[1].

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

Cell Cycle Analysis[1]

Cell Line:	MCF-7 cells
Concentration:	5 nM, 10 nM, 20 nM
Incubation Time:	24 h
Result:	Could arrest cancer cells in the G2/M phase.

Apoptosis Analysis[1]

Cell Line:	MCF-7 cells
Concentration:	5 nM, 10 nM, 20 nM
Incubation Time:	24 h
Result:	Induced MCF-7 cells apoptosis.

Western Blot Analysis[1]

Cell Line:	MCF-7 cells
Concentration:	5 nM, 10 nM, 20 nM
Incubation Time:	24 h
Result:	Induced cdc25c activation.

In Vivo

Tubulin polymerization-IN-41 (compound C3; 5-20 mg/kg; i.p; every two days; for 21 consecutive days) exhibits the significant potency of tumor growth inhibition in a dose dependence without weight loss in the drug-treated period[1].

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

Animal Model:	Five-week-old female athymic nude mice injected with MCF-7 cells[1]
Dosage:	5, 10, and 20 mg/kg
Administration:	Intraperitoneal injection; every two days; for 21 consecutive days
Result:	Exhibited the significant potency of tumor growth inhibition in a dose dependence without weight loss in the drug-treated period.

REFERENCES

[1]. Jiafu Leng, et al. Discovery of Novel N-Heterocyclic-Fused Deoxypodophyllotoxin Analogues as Tubulin Polymerization Inhibitors Targeting the Colchicine-Binding Site for Cancer Treatment. J Med Chem. 2022 Dec 22;65(24):16774-16800.

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