Data Sheet (Cat.No.T212269)

TargetMol

Tubulin-IN-53

Chemical Properties

CAS No. :

Formula:

Molecular Weight:

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Tubulin-IN-53 is a potent inhibitor of microtubulin (Tubulin) with an IC50 of 6.06 μM. By targeting the colchicine binding site on tubulin, Tubulin-IN-53 hinders tubulin polymerization, disrupting the microtubule network. It induces cell cycle arrest at the G2/M phase and apoptosis (apoptosis) in MCF-7 cells, while inhibiting cell migration. This compound also leads to a reduction in mitochondrial membrane potential and an increase in reactive oxygen species (ROS) accumulation. Additionally, Tubulin-IN-53 disrupts angiogenesis in human umbilical vein endothelial cells and is applicable in research on cancers such as breast and lung cancer.
Targets(IC50)	Apoptosis,Microtubule Associated,ROS
In vitro	Tubulin-IN-53 (Compound A7) exhibits antiproliferative activity in various cancer cell lines, with IC50 values of 6, 4, 5, 6, 4, and 10 nM for PC-3, MCF-7, MDA-MB-231, A549, HT-29, and A549/TxR cells, respectively. It shows mild cytotoxicity to normal cells, with CC50 values of 112 and 220 nM for L02 and MCF-10A cells. At concentrations of 5-20 nM over 14 days, Tubulin-IN-53 consistently suppresses colony formation in MCF-7 cells. In a dose-dependent manner, at 5-20 nM for 6 hours, it inhibits the formation of the EBI and β-tubulin complex and completely disrupts the microtubule network in MCF-7 cells. Additionally, at 5-20 nM for 24 hours, it induces G2/M phase cell cycle arrest and apoptosis in MCF-7 cells, significantly increasing intracellular ROS levels. At 2.5-10 nM for 24 hours, Tubulin-IN-53 inhibits A549 cell migration and effectively suppresses vascular network formation in endothelial cells.

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