Data Sheet (Cat.No.T214354)

TargetMol

Tubulin/VEGFR-2-IN-2

Chemical Properties

CAS No. : 2882998-56-1

Formula: C20H22N4O3

Molecular Weight: 366.42

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/VEGFR-2-IN-2 is an orally active dual inhibitor of tubulin and VEGFR-2, with IC50 values of 3.27 μM and 0.09 μM, respectively. This compound exerts antitumor effects through multiple pathways, including enhancing reactive oxygen species (ROS) production, disrupting mitochondrial membrane potential, inducing apoptosis, and causing cell cycle arrest. Tubulin/VEGFR-2-IN-2 also demonstrates significant anti-angiogenic properties in vitro, effectively inhibiting endothelial cell migration, invasion, and tube formation. Furthermore, in vivo, it inhibits angiogenesis, tumor growth, and metastasis. Tubulin/VEGFR-2-IN-2 is applicable for research on non-small cell lung cancer, breast cancer, gastric cancer, and lymphoma.
Targets(IC50)	Apoptosis,VEGFR
In vitro	Tubulin/VEGFR-2-IN-2 (compound 19d) exhibits outstanding antiproliferative activity across various cancer cell lines, with IC 50 values of 0.26, 0.19, 0.04, 0.04, 12.06, and 4.70 μM for A549, MCF-7, MGC-803, U937, HEK 293 T, and RAW 264.7 cells, respectively. In MGC-803 cells, Tubulin/VEGFR-2-IN-2 (0-20 nM, 24 hours) demonstrates potent antiproliferative effects. At concentrations of 25-100 nM for 48 hours, this compound inhibits cell proliferation by disrupting tubulin polymerization in MGC-803 cells. Furthermore, it induces apoptosis through the activation of caspase proteins, reduces mitochondrial membrane potential in a dose-dependent manner, causes significant DNA damage and oxidative stress, leads to G2/M phase cell cycle arrest, and diminishes the migratory and invasive capabilities of MGC-803 cells. Additionally, Tubulin/VEGFR-2-IN-2 (20-80 nM, 6-8 hours or 48 hours) inhibits angiogenesis by suppressing the VEGFR-2 driven PI3K/AKT/MAPK pathway in human umbilical vein endothelial cells (HUVEC), resulting in the disruption of angiogenic structures, breakdown of tubular networks, and reduction in node numbers, major junctions, segment length, total branch length, grids, and average density. It also inhibits the migration and invasion of endothelial cells in HUVECs.
In vivo	Tubulin/VEGFR-2-IN-2 (compound 19d) at a concentration of 100-400 nM in 1 mL water, administered for 18 hours, can inhibit angiogenesis in Tg(flk: EGFP) zebrafish embryos. Additionally, Tubulin/VEGFR-2-IN-2 at the same concentration and for 72 hours significantly suppresses tumor growth and metastasis in the bodies of Tg(flk: EGFP) zebrafish larvae induced by fluorescently labeled MGC-803 cells in a dose-dependent manner.

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.7291 mL	13.6455 mL	27.2911 mL
5 mM	0.5458 mL	2.7291 mL	5.4582 mL
10 mM	0.2729 mL	1.3646 mL	2.7291 mL
50 mM	0.0546 mL	0.2729 mL	0.5458 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

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