Supinoxin

Cat. No.: HY-123611

CAS No.: 888478-45-3

Molecular Formula: $C_{22}H_{24}FN_5O_4$

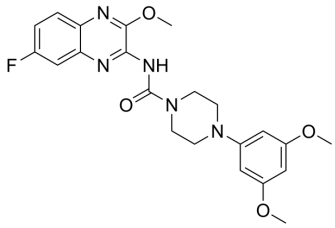
Molecular Weight: 441.46

Target: Apoptosis; DNA/RNA Synthesis

Pathway: Apoptosis; Cell Cycle/DNA Damage

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (226.52 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.2652 mL	11.3261 mL	22.6521 mL
5 mM	0.4530 mL	2.2652 mL	4.5304 mL
10 mM	0.2265 mL	1.1326 mL	2.2652 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.66 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.66 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Supinoxin (RX-5902) is an orally active inhibitor of phosphorylated-p68 RNA helicase (P-p68) and a potent first-in-class anti-cancer agent. Supinoxin interacts with Y593 phosphorylated-p68 and attenuates the nuclear shuttling of β-catenin. Supinoxin induces cell apoptosis and inhibits growth of TNBC cancer cell lines with IC_{50}s ranging from 10 nM to 20 nM[1][2].

IC_{50} & Target

IC50: phosphorylated-p68 RNA helicase; apoptosis[1]

In Vitro

RX-5902 (0-10 μM; 72 hours) is active against cell lines of all TNBC molecular subtypes and is active against cell lines with mutations in p53, RB1, CDKN2A, and loss of PTEN[1].
RX-5902 (20-100 nM; 24 hours) treatment results in a dose-dependent increase in tetraploid cells, consistent with induction of G2–M cell-cycle arrest[1].

RX-5902 (0-100 nM; 72 hours) exhibits no significant induction of apoptosis in cell lines resistant to the antiproliferative effects of RX5902. But in sensitive cells, the observed activation of apoptosis begins at 24–48 hours and reaches a peak at 72 hours. The induced apoptosis is greasted with a dose of 100 nM[1].

RX-5902 (0-100 nM; 24 or 48 hours) decreases MCL-1 expression as a dose-dependent manner in TNBC cell lines sensitive to RX-5902[1].

RX-5902 inhibits cell growth, MDA-MB-231, Caki-1, UMRC2, PANC-1, A549, MKN-45, HepG2, HCT116, HT29, PC-3, U251, HeLa, SK-MEL-28 and OVCAR-3 with IC_{50} values range from 0.01 μM to 0.021 μM in the growth inhibition of cancer cells[2].

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

Cell Viability Assay[1]

Cell Line:	MDA-MB-231, HCC1806, Hs578t, CAL-85-1, HCC38, HCC1187, MDA-MB-436, CAL-51, HCC38, BT549, MDAMB-157, HDQ-P1, HCC1395, MDA-MB-436, HCC1937, CAL-120, BT20 cells
Concentration:	0-10 μM
Incubation Time:	72 hours
Result:	Displayed the average IC_{50} of the cell lines sensitive to RX-5902 treatment is 56 nM.

Cell Cycle Analysis[1]

Cell Line:	Sensitive (MDA-MB-231 and HCT1806) and two resistant (MDA-MB-436 and CAL-120) cell lines
Concentration:	20 nM; 100 nM
Incubation Time:	24 hours
Result:	Led to G2-M cell-cycle arrest at sensitive cells.

Apoptosis Analysis[1]

Cell Line:	Sensitive (MDA-MB-231 and HCT1806) and two resistant (MDA-MB-436 and CAL-120) cell lines
Concentration:	0-100 nM
Incubation Time:	24-72 hours
Result:	Induced cell apoptosis in sensitive cell lines and peaks at 72 hours.

Western Blot Analysis[1]

Cell Line:	Cal-51, HCC-1806, and MDA-MB-468 cells
Concentration:	20 nM; 100 nM
Incubation Time:	24 hours
Result:	Induced inhibition of MCL-1 expression in Cal-51, HCC-1806, and MDA-MB-468 cells.

In Vivo

RX-5902 (oral administration; 160/320/600 mg/kg; once weekly for 3 weeks) significant dose-dependent tumor growth inhibition (TGI) in the MDA-MB-231 model, exhibits TGI of 55.7%, 80.29% and 94.58% at 160 mg/kg, 320 mg/kg and 600 mg/kg, respectively. It is more efficacious than the chemotherapy control arm of nab-paclitaxel (TGI 45%)[1].

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

Animal Model:	MDAMD-231 xenograft model in mice[1]

Dosage:	160 mg/kg; 320 mg/kg; 600 mg/kg
Administration:	Oral administration; once weekly for 3 weeks
Result:	Decreased tumor volume as a dose-dependent manner.

REFERENCES

[1]. Kost GC, et al. A Novel Anti-Cancer Agent, 1-(3,5-Dimethoxyphenyl)-4-[(6-Fluoro-2-Methoxyquinoxalin-3-yl)Aminocarbonyl] Piperazine (RX-5902), Interferes With β-Catenin Function Through Y593 Phospho-p68 RNA Helicase.J Cell Biochem. 2015 Aug;116(8):1595-601.

[2]. Capasso A, et al. First-in-Class Phosphorylated-p68 Inhibitor RX-5902 Inhibits β-Catenin Signaling and Demonstrates Antitumor Activity in Triple-Negative Breast Cancer.Nov;18(11):1916-1925.

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