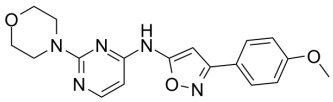
BO-264

Cat. No.:	HY-135960
CAS No.:	2408648-20-2
Molecular Formula:	$C_{18}H_{19}N_5O_3$
Molecular Weight:	353.38
Target:	Apoptosis; FGFR
Pathway:	Apoptosis; Protein Tyrosine Kinase/RTK
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 : 50 mg/mL (141.49 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8298 mL	14.1491 mL	28.2981 mL
	5 mM	0.5660 mL	2.8298 mL	5.6596 mL
	10 mM	0.2830 mL	1.4149 mL	2.8298 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (5.89 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.89 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.89 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

BO-264 is a highly potent and orally active transforming acidic coiled-coil 3 (TACC3) inhibitor with an IC_{50} of 188 nM and a K_d of 1.5 nM. BO-264 specifically blocks the function of FGFR3-TACC3 fusion protein. BO-264 induces spindle assembly checkpoint (SAC)-dependent mitotic arrest, DNA damage and apoptosis. BO-264 has broad-spectrum antitumor activity[1].

IC_{50} & Target

IC50: 188 nM (Transforming acidic coiled-coil 3 (TACC3))[1]
Kd: 1.5 nM (TACC3)[1]

In Vitro

BO-264 (500 nM; 48 hours; JIMT-1 cells) treatment induces a prominent increase (from 4.1% to 45.6%) in the fraction of apoptotic cells as assessed by Annexin V/PI staining[1].

BO-264 (500 nM; 24 hours; RT112 cells) treatment decreases ERK1/2 phosphorylation, which is a marker for activated FGFR signaling along with a strong mitotic arrest[1].

BO-264 inhibits cell viability with IC_{50} values of 190 nM, 160 nM, 120 nM, 130 nM and 360 nM for JIMT-1, HCC1954, MDA-MB-231, MDA-MB-436 and CAL51, respectively. BO-264 specifically targets breast cancer cells while sparing normal cells. BO-264 treatment significantly reduces the average colony number of JIMT-1 cells[1].

BO-264 inhibits the viability of cancer cells with FGFR3-TACC3 fusion with IC_{50} values of 0.3 μM and 3.66 μM for RT112 and RT4, respectively[1].

BO-264 exhibits a remarkable anti-cancer activity against more than 90% of the NCI267 60 human cancer cell lines representing nine different subpanels with GI_{50} values less than 1 μM[1].

BO-264 induces mitotic arrest (prominent induces p-Histone H3 (Ser10)), apoptosis (cleaved PARP) and DNA damage, causes aberrant spindle formation and reduces centrosomal localization of TACC3 in JIMT-1 cells[1].

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

Apoptosis Analysis[1]

Cell Line:	JIMT-1 cells
Concentration:	500 nM
Incubation Time:	48 hours
Result:	Induced a prominent increase (from 4.1% to 45.6%) in the fraction of apoptotic cells as assessed by Annexin V/PI staining.

Western Blot Analysis[1]

Cell Line:	RT112 cells
Concentration:	500 nM
Incubation Time:	24 hours
Result:	Decreased ERK1/2 phosphorylation.

In Vivo

BO-264 (25 mg/kg; oral administration; daily; for 3-4 weeks; female nude mice) treatment shows a significant suppression of tumor growth. BO-264 is well tolerated since treatment does not causes a significant body weight loss and organ toxicity[1].

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

Animal Model:	Female nude mice injected with JIMT-1 cells[1]
Dosage:	25 mg/kg
Administration:	Oral administration; daily; for 3-4 weeks
Result:	Showed a significant suppression of tumor growth.

REFERENCES

[1]. Akbulut O, et al. A Highly Potent TACC3 Inhibitor as a Novel Anti-cancer Drug Candidate. Mol Cancer Ther. 2020 Mar 26. pii: molcanther.0957.2019.

Caution: Product has not been fully validated for medical applications. For research use only.

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