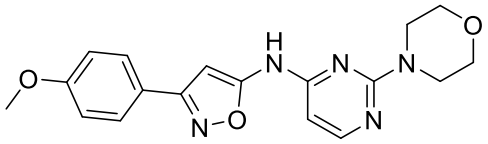
Product data sheet

MedKoo Cat#: 408094 Name: BO-264 CAS#: 2408648-20-2 Chemical Formula: $C_{18}H_{19}N_5O_3$ Exact Mass: 353.1488 Molecular Weight: 353.382	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

BO-264 is a highly potent and orally active transforming acidic coiled-coil 3 (TACC3) inhibitor with an IC50 of 188 nM and a Kd of 1.5 nM. BO-264 demonstrated superior anti-proliferative activity to the two currently reported TACC3 inhibitors, especially in aggressive breast cancer subtypes, basal and HER2+, via spindle assembly checkpoint (SAC)-dependent mitotic arrest, DNA damage and apoptosis, while the cytotoxicity against normal breast cells was negligible.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	60.0	169.79

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.83	14.15	28.30
5 mM	0.57	2.83	5.66
10 mM	0.28	1.41	2.83
50 mM	0.06	0.28	0.57

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Akbulut O, Lengerli D, Saatci O, Duman E, Seker UOS, Isik A, Akyol A, Caliskan B, Banoglu E, Sahin O. A Highly Potent TACC3 Inhibitor as a Novel Anticancer Drug Candidate. Mol Cancer Ther. 2020 Jun;19(6):1243-1254. doi: 10.1158/1535-7163.MCT-19-0957. Epub 2020 Mar 26. PMID: 32217742.

In vivo study

1. Akbulut O, Lengerli D, Saatci O, Duman E, Seker UOS, Isik A, Akyol A, Caliskan B, Banoglu E, Sahin O. A Highly Potent TACC3 Inhibitor as a Novel Anticancer Drug Candidate. Mol Cancer Ther. 2020 Jun;19(6):1243-1254. doi: 10.1158/1535-7163.MCT-19-0957. Epub 2020 Mar 26. PMID: 32217742.

7. Bioactivity

Biological target:

BO-264 is a transforming acidic coiled-coil 3 (TACC3) inhibitor that blocks the function of FGFR3-TACC3 fusion protein with an IC50 of 188 nM and a Kd of 1.5 nM.

Product data sheet

In vitro activity

Having validated the binding between BO-264 and the TACC3 protein, the anticancer potential of BO-264 was analyzed in comparison with the currently available TACC3 inhibitors, SPL-B (27) and KHS101 (19). To this end, its cytotoxicity was tested in several different breast cancer cell lines, as well as a normal breast cell line, MCF-12A. BO-264 inhibited the viability of basal (MDA-MB-231, MDA-MB-436, CAL51, and HCC1143) and HER2+ (JIMT-1 and HCC1954) breast cancer cell lines at lower doses compared with luminal A (MCF-7, T-47D, and ZR-75-1) and luminal B (BT-474) breast cancer cell lines (Supplementary Fig. S3B). Furthermore, BO-264 IC50 with the IC50 of other two TACC3 inhibitors was compared in most sensitive cell lines and found that BO-264 had a significantly lower IC50 value (120–360 nmol/L) than SPL-B (790–3,670 nmol/L) and KHS101 (1,790–17,400 nmol/L), while no cytotoxic effect of BO-264 and other TACC3 inhibitors in the normal breast cells was observed (Fig. 3A and B). The superior anticancer activity of BO-264 has also been validated with a colony formation assay using JIMT-1 cells where a significantly lower average colony number of JIMT-1 cells was demonstrated upon treatment with BO-264 (Fig. 3C and D). These results suggest that BO-264 specifically targets breast cancer cells while sparing normal cells.

Mol Cancer Ther. 2020 Jun;19(6):1243-1254. https://mct.aacrjournals.org/content/19/6/1243.long

In vivo activity

To further test the antitumorigenic potential of TACC3 inhibition by BO-264 in the in vivo settings, the xenografts of HER2+ JIMT-1 cell line that is known to be highly tumorigenic, and that we demonstrated the expression of high levels of TACC3 (Supplementary Fig. S3A) was demonstrated along with the high sensitivity to BO-264 (Fig. 3A). To this end, JIMT-1 cells were injected into mammary fat pad (MFP) of female nude mice, and mice were subsequently treated with vehicle or BO-264 (25 mg/kg) for 3–4 weeks. BO-264–treated mice showed a significant suppression of tumor growth compared with vehicle-treated mice (Fig. 6A). Moreover, BO-264 was well-tolerated because treatment did not cause a significant body weight loss (Fig. 6B) and organ toxicity (Fig. 6C). A significant tumor growth inhibition and 57.1% increased lifespan in BO-264–treated mice compared with vehicle-treated ones (Fig. 6D and E) was obserbed. Inhibition of TACC3 with BO-264 leads to mitotic arrest, DNA damage, and apoptosis, similar to the results we obtained in breast cancer (Supplementary Fig. S5D) was also shown. Finally, the Mol Cancer Ther. 2020 Jun;19(6):1243-1254. https://mct.aacrjournals.org/content/19/6/1243.long
antitumorigenic effect of BO-264 (50 mg/kg) was testsed on colon cancer xenografts (HCT-116) and syngeneic (CT-26) tumor models and demonstrated that BO-264 significantly impairs tumor growth (Supplementary Fig. S5E) without any significant toxicity.

Mol Cancer Ther. 2020 Jun;19(6):1243-1254. https://mct.aacrjournals.org/content/19/6/1243.long

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.