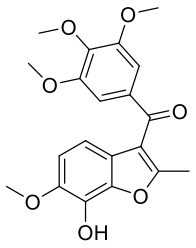
Product data sheet

MedKoo Cat#: 204760 Name: BNC-105 CAS#: 945771-74-4 Chemical Formula: $C_{20}H_{20}O_7$ Exact Mass: 372.1209 Molecular Weight: 372.37	
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:

BNC105 is a novel compound being developed by Bionomics as a Vascular Disrupting Agent (VDA) for treatment of cancer. VDAs are drugs that disrupt the blood vessels that nourish tumours. BNC105 acts as a tubulin polymerization inhibitor and displays 80-fold higher potency against endothelial cells than that of CA4P. CA4P is a VDA currently under evaluation in phase III clinical trials. BNC105 is more potent and offers a wider therapeutic window. CA4P produces 90% vascular disruption at its no observed adverse event level (NOAEL), whereas BNC105 causes 95% vascular disruption at 1/8th of its NOAEL. Tissue distribution analysis of BNC105 in tumor-bearing mice showed that while the drug is cleared from all tissues 24 hours after administration, it is still present at high concentrations within the solid tumor mass. Furthermore, BNC105 treatment causes tumor regressions with complete tumor clearance in 20% of treated animals.

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	25.0	67.14

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.69 mL	13.43 mL	26.86 mL
5 mM	0.54 mL	2.69 mL	5.37 mL
10 mM	0.27 mL	1.34 mL	2.69 mL
50 mM	0.05 mL	0.27 mL	0.54 mL

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. Bates D, Feris EJ, Danilov AV, Eastman A. Rapid induction of apoptosis in chronic lymphocytic leukemia cells by the microtubule disrupting agent BNC105. Cancer Biol Ther. 2016;17(3):291-9. doi: 10.1080/15384047.2016.1139245. Epub 2016 Jan 30. PMID: 26891146; PMCID: PMC4847999.

In vivo study

1. Flynn BL, Gill GS, Grobelny DW, Chaplin JH, Paul D, Leske AF, Lavranos TC, Chalmers DK, Charman SA, Kostewicz E, Shackleford DM, Morizzi J, Hamel E, Jung MK, Kremmidiotis G. Discovery of 7-hydroxy-6-methoxy-2-methyl-3-(3,4,5-trimethoxybenzoyl)benzo[b]furan (BNC105), a tubulin polymerization inhibitor with potent antiproliferative and tumor vascular disrupting properties. J Med Chem. 2011 Sep 8;54(17):6014-27. doi: 10.1021/jm200454y. Epub 2011 Aug 5. PMID: 21774499; PMCID: PMC3172808.

2. Kremmidiotis G, Leske AF, Lavranos TC, Beaumont D, Gasic J, Hall A, O'Callaghan M, Matthews CA, Flynn B. BNC105: a novel tubulin polymerization inhibitor that selectively disrupts tumor vasculature and displays single-agent antitumor efficacy. Mol Cancer Ther. 2010 Jun;9(6):1562-73. doi: 10.1158/1535-7163.MCT-09-0815. Epub 2010 Jun 1. PMID: 20515948.

7. Bioactivity

Biological target:

BNC105 is a tubulin polymerization inhibitor with potent antiproliferative and tumor vascular disrupting properties.

In vitro activity

BNC105 exhibits an EC_{50} for chromatin condensation of <20 nmol/L, while vinblastine and CA4 demonstrated $EC_{50} \geq 100$ nmol/L. The ability of these drugs to impact the biomarkers phospho-JNK and Noxa correlated with apoptosis. BNC105 was ~10x more potent than vinblastine and CA4 to activate JNK and Noxa and induce apoptosis (Fig. 1A).

Reference: Cancer Biol Ther. 2016 Mar; 17(3): 291–299. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4847999/

In vivo activity

BNC105 is more potent and offers a wider therapeutic window. CA4 produces 90% vascular disruption at its no observed adverse event level (NOAEL), whereas BNC105 causes 95% vascular disruption at 1/8th of its NOAEL. Tissue distribution analysis of BNC105 in tumor-bearing mice showed that while the drug is cleared from all tissues 24 hours after administration, it is still present at high concentrations within the solid tumor mass. Furthermore, BNC105 treatment causes tumor regressions with complete tumor clearance in 20% of treated animals.

Reference: J Med Chem. 2011 Sep 8; 54(17): 6014–6027. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3172808/

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.