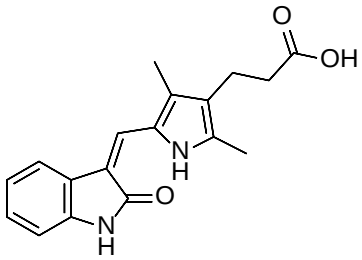
Product data sheet

MedKoo Cat#: 206321 Name: Orantinib CAS: 252916-29-3 Chemical Formula: $C_{18}H_{18}N_2O_3$ Exact Mass: 310.1317 Molecular Weight: 310.3530	
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:

Orantinib, also known as TSU-68； SU6668, is an orally bioavailable receptor tyrosine kinase inhibitor. Orantinib binds to and inhibits the autophosphorylation of vascular endothelial growth factor receptor 2 (VEGFR2), platelet-derived growth factor receptor (PDGFR), and fibroblast growth factor receptor (FGFR), thereby inhibiting angiogenesis and cell proliferation. Orantinib also inhibits the phosphorylation of the stem cell factor receptor tyrosine kinase c-kit, often expressed in acute myelogenous leukemia cells. Check for active clinical trials or closed clinical trials using this agent.

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
DMF	5.0	16.11
DMF:PBS (pH 7.2) (1:1)	0.5	1.61
DMSO	48.88	157.51

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	3.22 mL	16.11 mL	32.22 mL
5 mM	0.64 mL	3.22 mL	6.44 mL
10 mM	0.32 mL	1.61 mL	3.22 mL
50 mM	0.06 mL	0.32 mL	0.64 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. Hara Y, Yamashita T, Oishi N, Nio K, Hayashi T, Nomura Y, Yoshida M, Hayashi T, Hashiba T, Asahina Y, Kondo M, Okada H, Sunagozaka H, Honda M, Kaneko S. TSU-68 ameliorates hepatocellular carcinoma growth by inhibiting microenvironmental platelet-derived growth factor signaling. Anticancer Res. 2015 Mar;35(3):1423-31. PMID: 25750293.
2. Laird AD, Vajkoczy P, Shawver LK, Thurnher A, Liang C, Mohammadi M, Schlessinger J, Ullrich A, Hubbard SR, Blake RA, Fong TA, Strawn LM, Sun L, Tang C, Hawtin R, Tang F, Shenoy N, Hirth KP, McMahon G, Cherrington. SU6668 is a potent antiangiogenic and antitumor agent that induces regression of established tumors. Cancer Res. 2000 Aug 1;60(15):4152-60. PMID: 10945623.

In vivo study

Product data sheet

1. Yamamoto M, Kikuchi H, Ohta M, Kawabata T, Hiramatsu Y, Kondo K, Baba M, Kamiya K, Tanaka T, Kitagawa M, Konno H. TSU68 prevents liver metastasis of colon cancer xenografts by modulating the premetastatic niche. Cancer Res. 2008 Dec 1;68(23):9754-62. doi: 10.1158/0008-5472.CAN-08-1748. PMID: 19047154.
2. Marzola P, Degrassi A, Calderan L, Farace P, Crescimanno C, Nicolato E, Giusti A, Pesenti E, Terron A, Sbarbati A, Abrams T, Murray L, Osculati F. In vivo assessment of antiangiogenic activity of SU6668 in an experimental colon carcinoma model. Clin Cancer Res. 2004 Jan 15;10(2):739-50. doi: 10.1158/1078-0432.ccr-0828-03. PMID: 14760097.

7. Bioactivity

Biological target:

Orantinib (SU6668; TSU-68) is a multi-targeted receptor tyrosine kinase inhibitor with Kis of 2.1 μM, 8 nM and 1.2 μM for Flt-1, PDGFRβ and FGFR1.

In vitro activity

Biochemical kinetic studies using isolated Flk-1, FGF receptor 1, and PDGF receptor beta kinases revealed that SU6668 has competitive inhibitory properties with respect to ATP. Cocrystallographic studies of SU6668 in the catalytic domain of FGF receptor 1 substantiated the adenine mimetic properties of its oxindole core. Molecular modeling of SU6668 in the ATP binding pockets of the FIk-1/KDR and PDGF receptor kinases provided insight to explain the relative potency and selectivity of SU6668 for these receptors. In cellular systems, SU6668 inhibited receptor tyrosine phosphorylation and mitogenesis after stimulation of cells by appropriate ligands.

Reference: Cancer Res. 2000 Aug 1;60(15):4152-60. https://pubmed.ncbi.nlm.nih.gov/10945623/

In vivo activity

A s.c. tumor model of HT29 human colon carcinoma in athymic mice was used. DCE-MRI clearly detected the early effect (after 24 h of treatment) of SU6668 on tumor vasculature as a 51% and 26% decrease in the average vessel permeability measured in the tumor rim and core (respectively). SU6668 greatly inhibited tumor growth, with 60% inhibition at 14 days of treatment.

Reference: Clin Cancer Res. 2004 Jan 15;10(2):739-50. https://pubmed.ncbi.nlm.nih.gov/14760097/

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.