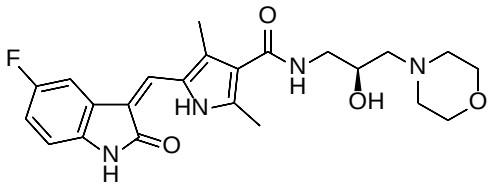
Product data sheet

MedKoo Cat#: 202710 Name: SU14813 CAS#: 627908-92-3 (free base) Chemical Formula: $C_{23}H_{27}FN_4O_4$ Exact Mass: 442.2016 Molecular Weight: 442.48	
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:
SU14813 is an oral, multitargeted tyrosine kinase inhibitor (TKI) targeting vascular endothelial growth factor receptors (VEGFR), platelet-derived growth factor receptors (PDGFR), KIT, and fms-like tyrosine kinase 3 (FLT-3) (1). SU14813 was developed as a next-generation TKI agent following sunitinib (SU11248) designed to demonstrate optimized pharmacokinetic (PK) and tolerability profiles. SU14813 demonstrated broad and potent antitumor activity equivalent to that of sunitinib, which resulted in tumor regression, growth arrest, growth delay, and prolonged survival in established xenograft cancer models in mice.

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	54.0	122.04
DMF	30.0	67.80
Ethanol	0.10	0.23
PBS (pH 7.2)	0.10	0.23

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.26 mL	11.30 mL	22.60 mL
5 mM	0.45 mL	2.26 mL	4.52 mL
10 mM	0.23 mL	1.13 mL	2.26 mL
50 mM	0.05 mL	0.23 mL	0.45 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. Patyna S, Laird AD, Mendel DB, O'farrell AM, Liang C, Guan H, Vojkovsky T, Vasile S, Wang X, Chen J, Grazzini M, Yang CY, Haznedar JO, Sukbuntherng J, Zhong WZ, Cherrington JM, Hu-Lowe D. SU14813: a novel multiple receptor tyrosine kinase inhibitor with potent antiangiogenic and antitumor activity. Mol Cancer Ther. 2006 Jul;5(7):1774-82. doi: 10.1158/1535-7163.MCT-05-0333. PMID: 16891463.

In vivo study

1. Patyna S, Laird AD, Mendel DB, O'farrell AM, Liang C, Guan H, Vojkovsky T, Vasile S, Wang X, Chen J, Grazzini M, Yang CY, Haznedar JO, Sukbuntherng J, Zhong WZ, Cherrington JM, Hu-Lowe D. SU14813: a novel multiple receptor tyrosine kinase inhibitor with potent antiangiogenic and antitumor activity. Mol Cancer Ther. 2006 Jul;5(7):1774-82. doi: 10.1158/1535-7163.MCT-05-0333. PMID: 16891463.

Product data sheet

7. Bioactivity

Biological target: SU14813 is a multi-targeted receptor tyrosine kinase inhibitor with IC50s of 50, 2, 4, 15 nM for VEGFR2, VEGFR1, PDGFRβ and KIT.

In vitro activity

SU14813 inhibited cellular ligand-dependent phosphorylation of VEGFR-2 (transfected NIH 3T3 cells), PDGFR-β (transfected NIH 3T3 cells), KIT (Mo7e cells), and FLT3-internal tandem duplication (FLT3-ITD; MV4;11 cells) as well as FMS/CSF1R (transfected NIH 3T3 cells), another split-kinase RTK (Table 1). Furthermore, SU14813 inhibited VEGFR-2, PDGFR-β, and KIT phosphorylation in porcine aorta endothelial cells overexpressing these targets, with cellular IC50 values of 5.2, 9.9, and 11.2 nmol/L, respectively. Consistent with its cellular RTK inhibitory activities, SU14813 inhibited PDGF-dependent proliferation of NIH-3T3 cells overexpressing PDGFR-β, FLT3 ligand–dependent proliferation of OC1-AML5 human AML cells expressing wild-type FLT3, and autonomous proliferation of MV4;11 human AML cells expressing constitutively active mutant FLT3-ITD (Table 1). In contrast, SU14813 did not potently inhibit epidermal growth factor–dependent DNA synthesis in NIH 3T3 cells overexpressing EGFR, a nontarget RTK, verifying that its effects are RTK target specific (Table 1).

Reference: Mol Cancer Ther. 2006 Jul;5(7):1774-82. https://mct.aacrjournals.org/content/5/7/1774.long

In vivo activity

In xenograft models using human and rat tumor cells implanted in athymic or nonobese diabetic/severe combined immunodeficient mice, SU14813 exhibited dose-dependent antitumor efficacy, resulting in regression of 786-O (PDGFR, VEGFR-expressing) and MV4;11 (activated FLT3-dependent) tumors, growth arrest of Colo205 tumors, and growth delay of C6 (PDGFR-expressing) and MV522 tumors (Table 2). Representative study results using C6, MV4;11, and 786-O models are shown in Fig. 3. SU14813 was also evaluated in a physiologically relevant leukemia model in mice, in which MV4;11 human AML cells engraft and proliferate in the bone marrow. SU14813 treatment conferred an approximate doubling of survival time from 23 to 42 days at these dose levels (Table 3).

Reference: Mol Cancer Ther. 2006 Jul;5(7):1774-82. https://mct.aacrjournals.org/content/5/7/1774.long