SU5416 is a tyrosine kinase inhibitor best known as an ATP-competitive inhibitor of the vascular endothelial growth factor receptor (VEGFR2; Flk-1/KDR). In addition to inhibiting VEGFR2 ($IC_{50} = 1 \mu M$), SU5416 also inhibits PDGFR ($IC_{50} = 20 \mu M$), c-KIT ($IC_{50} = 30 \text{nM}$), RET ($IC_{50} = 170 \text{nM}$), FLT-3 ($IC_{50} = 160 \text{nM}$), ABL ($IC_{50} = 11 \mu M$), and ALK ($IC_{50} = 1.2 \mu M$). SU5416 does not inhibit EGFR or FGFR tyrosine kinases ($IC_{50} > 100 \mu M$; Fong et al.; Litz; Mologni et al.).

**Molecular Name:** SU5416  
**Alternative Names:** NSC 696819; Semaxinib; Sugen 5416; VEGFR 2 Kinase Inhibitor  
**CAS Number:** 204005-46-9  
**Chemical Formula:** $C_{15}H_{14}N_2O$  
**Molecular Weight:** $238.3 \text{ g/mol}$  
**Purity:** $\geq 98\%$  
**Chemical Name:** 3-[(3,5-dimethyl-1H-pyrrol-2-yl)methylene]-1,3-dihydro-2H-indol-2-one

**Structure:**

![Structure of SU5416](image)

**Properties**

**Physical Appearance:** A crystalline solid  
**Storage:** Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.  
**Solubility:**  
- DMSO $\leq 40 \text{ mM}$  
- Absolute ethanol $\leq 1 \text{ mM}$  
  For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 4.20 mL of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.
Published Applications

IMMUNOLOGY
- Inhibits TGFβ1 activation and delays wound healing in rats (Haroon et al.).

CANCER RESEARCH
- Prevents angiogenesis, thereby inhibiting tumor growth, catalysis, and vascularization for a variety of cancers (Litz; Fong et al.).
- Inhibits RET-mediated transformation of NIH 3T3 mouse fibroblasts and Ba/F3 mouse pro-B cells (Mologni et al.).

DISEASE MODELING
- Causes pulmonary hypertension in SuHx rat model of pulmonary arterial hypertension, when combined with hypoxia (de Raaf et al.; Mizuno et al.).

References

Related Small Molecules
For a complete list of small molecules available from STEMCELL Technologies, visit www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.