

## Small Molecules

**SU5416**

Tyrosine kinase inhibitor; Inhibits KDR, PDGFR, KIT, RET, FLT-3, ABL, and ALK

Catalog # 73442  
73444

10 mg  
50 mg



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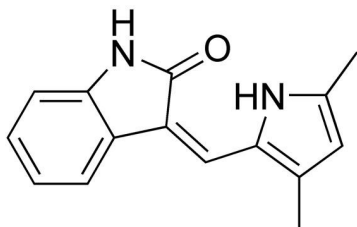
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## Product Description

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 ( $IC_{50} = 30 nM$ ), RET ( $IC_{50} = 170 nM$ ), FLT-3 ( $IC_{50} = 160 nM$ ), 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, Sugan 5416, VEGFR 2 Kinase Inhibitor
CAS Number:	204005-46-9
Chemical Formula:	$C_{15}H_{14}N_2O$
Molecular Weight:	238.3 g/mol
Purity:	$\geq 98\%$
Chemical Name:	3-[(3,5-dimethyl-1H-pyrrol-2-yl)methylene]-1,3-dihydro-2H-indol-2-one
Structure:	



## Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at $-20^{\circ}C$ as supplied. Protect from prolonged exposure to light. For product expiry date, please contact <a href="mailto:techsupport@stemcell.com">techsupport@stemcell.com</a> .
Solubility:	<ul style="list-style-type: none"><li>· DMSO <math>\leq 40</math> mM</li><li>· Absolute ethanol <math>\leq 1</math> mM</li></ul> 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  $-20^{\circ}C$ . 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 TGF $\beta$ 1 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

- Fong TA et al. (1999) SU5416 is a potent and selective inhibitor of the vascular endothelial growth factor receptor (Flk-1/KDR) that inhibits tyrosine kinase catalysis, tumor vascularization, and growth of multiple tumor types. *Cancer Res* 59(1): 99–106.
- Haroon ZA et al. SU5416 delays wound healing through inhibition of TGF-beta 1 activation. *Cancer Biol Ther* 1(2): 121–6.
- Litz J. (2004) The multi-targeted kinase inhibitor SU5416 inhibits small cell lung cancer growth and angiogenesis, in part by blocking Kit-mediated VEGF expression. *Lung Cancer* 46(3): 283–291.
- Mizuno S et al. (2012) Severe pulmonary arterial hypertension induced by SU5416 and ovalbumin immunization. *Am J Respir Cell Mol Biol* 47(5): 679–87.
- Mologni L et al. (2006) Inhibition of RET tyrosine kinase by SU5416. *J Mol Endocrinol* 37(2): 199–212.
- de Raaf MA et al. (2014) SuHx rat model: partly reversible pulmonary hypertension and progressive intima obstruction. *Eur Respir J* 44(1): 160–8.

## Related Small Molecules

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