Recombinant Human VEGFR1 (carrier-free)

Catalog# / Size	555802 / 10 µg 555804 / 25 µg
Regulatory Status	RUO
Other Names	Fms-related tyrosine kinase 1, oncogene FLT, FLT, FLT-1, VEGFR1, VEGFR-1, VEGFR
Description	The VEGF family includes five members, VEGFA (VEGFA165), VEGFB, VEGFC, VEGFD and placenta growth factor (PLGF). Structurally, these growth factors are homodimers although heterodimers have been described that are composed of VEGFA and PLGF. There are three VEGF receptor tyrosine kinases: VEGFR1 (Flt1), VEGFR2 (Flk1), and VEGFR3 (Flt4). The expression of these receptors is overlapping; nevertheless, a distribution pattern has been reported: VEGFR1 is expressed on monocytes and macrophages, VEGFR2 on vascular endothelial cells, and VEGFR3 on lymphatic endothelial cells. VEGFR1 and VEGFR2 share 43.2% amino acid sequence homology and are structurally similar. VEGFR1 is an angiogenic and anti-angiogenic factor depending on the ligand binding it (PLGF-1 inhibits angiogenesis, whereas VEGF and PLGF2 are pro-angiogenic). Also, VEGFR1 mediates the angiostatic effect of pigment epithelium-derived factor (PEDF). A soluble form of VEGFR1 was initially identified in conditioned culture medium of HUVEC cells and it was found that it binds with high affinity to VEGFA. Soluble VEGFR1 and VEGFR2 act as decoy receptors for VEGFA, regulating the availability of VEGFA of which there are at least four different alternatively spliced soluble proteins. sVEGFR1 expression is upregulated by hypoxic conditions via HIF1-α in cytotrophoblasts. In preeclampsia activated platelets bind to monocytes to produce sVEGFR1. Increased circulating sVEGFR1 has been correlated with reduced free PLGF and reduced free VEGF in the blood compared to normal pregnancies. In addition, sVEGFR1 has been detected in cornea, and it is essential for preserving the avascular ambit of the cornea.

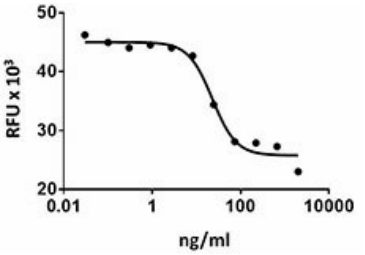
Product Details

Source	Human VEGFR1, amino acids (Ser27-His687) (Accession# U01134), was expressed in 293E cells. An 8 His-tag is at the carboxyl terminal.
Molecular Mass	The 674 amino acid recombinant protein has a predicted molecular mass of approximately 76.2 kD. The DTT-reduced and non-reduced protein migrate at approximately 120 kD by SDS-PAGE. The predicted N-terminal amino acid is Ser.
Purity	>95%, as determined by Coomassie stained SDS-PAGE.
Formulation	0.22 µm filtered protein solution is in 20 mM MOPS, 150 mM NaCl, 1 mM CHAPS pH 6.5.
Endotoxin Level	Less than 0.01 ng per µg cytokine as determined by the LAL method.
Concentration	10 and 25 µg sizes are bottled at 200 µg/mL.
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 µg/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week and stored at -20°C or colder for up to 3 months. **Avoid repeated freeze/thaw cycles.**
Activity	ED_{50} = 20 - 100 ng/ml, corresponding to a specific activity of 1 - 5 x 10^4 units/mg, as determined by inhibition of HUVEC cell proliferation.
Application	Bioassay
Application Notes	BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue-ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee. If you have any concerns, contact us at tech@biolegend.com.

Antigen Details

Structure	Cytokine receptor
Distribution	Endothelial cells, placental trophoblast cells, peripheral blood monocytes and macrophages
Function	VEGFR1 plays a key role in angiognesis and vasculogenesis. It is regulated by PEDF, which effects its intracellular proteolysis rate. sVEGFR1 regulates the availability of VEGFA and is produced in the placenta under hypoxic conditions.
Ligand/Receptor	VEGFR-A, VEGFR-B, and PlGF
Cell Type	Hematopoietic stem and progenitors, Mesenchymal Stem Cells, Neural Stem Cells
Biology Area	Angiogenesis, Cell Biology, Neuroscience, Stem Cells, Synaptic Biology
Molecular Family	Cytokine/Chemokine Receptors, Soluble Receptors
Antigen References	1. Kendall RL, *et al.* 1996. *Biochem. Biophys. Res. Commun.* 226:324. 2. Cai J, *et al.* 2006. *J. Biol. Chem.* 281:3604. 3. Ambati BK, *et al.* 2006. *Nature* 443:993. 4. Heydarian M, *et al.* 2009. *Placenta* 30:250. 5. Thomas CP, *et al.* 2009. *J. Clin. Endocrinol. Metab.* 94:2524. 6. Wu, *et al.* 2010. *J. Cell Mol. Med.* 14:528. 7. Cai J, *et al.* 2011. *PLoS One* 6:e18076.
Gene ID	2321

Product Data



Inhibition of HUVEC cell proliferation induced by VEGF165 in the presence of human soluble VEGFR1.

BioLegend Inc., 8999 BioLegend Way, San Diego, CA 92121 www.biolegend.com
Toll-Free Phone: 1-877-Bio-Legend (246-5343) Phone: (858) 768-5800 Fax: (877) 455-9587