Recombinant Rat SCF (carrier-free)

Catalog# / Size	782301 / 2 µg 782302 / 10 µg
Regulatory Status	RUO
Other Names	KIT-ligand, Kitl, KL-1, mast cell grow factor (MGF), steel factor (SF), FPH2, SHEP7
Description	Rat SCF was identified and purified from buffalo rat liver-conditioned medium. It is synthesized as a membrane-bound form of 273 amino acids. The protein contains a proteolytic cleavage site that is cleaved from the cell to release an active soluble protein. The soluble SCF is glycosylated at both N-linked and O-linked sites. MMP-9 plays a physiological role in SCF release from the membrane, and this action has a significant part in differentiating and mobilizing stem and progenitors cells from the bone marrow. SCF increases the proliferation of myeloid and lymphoid hematopoietic progenitors in bone marrow cultures. SCF/c-kit interaction in mast cells results in mast cell degranulation and liberation of mediators, such as histamine, inflammatory cytokines, and chemokines. Also, activation of c-kit in dendritic cells regulates T helper cell differentiation and allergic asthma. In addition, SCF plays an important role in revascularization of ischemic limbs. Ischemia induces plasma elevation of SCF and thrombopoietin (TPO) and lower levels of GM-CSF and erythropoietin (EPO). SCF and TPO induce the release of CXCL12 from platelets thereby increasing CXCL12 levels in plasma. This results in an extensive mobilization of CXCR4+VEGFR1+ cells (hemangiocytes) accelerating revascularization of the ischemic limbs. SCF and its receptor (c-kit) drive the recruitment and expansion of different stem cell types, including hematopoietic, neuronal, germ, and cardiac. SCF gene transfer promotes cardiac repair after myocardial infarction via in situ recruitment and expansion of c-kit+ cells. Also, c-kit signaling plays a key role in the pancreas, including islet morphogenesis, islet vascularization, and beta cell survival and function.

Product Details

Source	Rat SCF, amino acid Met - (Gln26– Ala189) (Accession # NP_068615.1) was expressed in *E.coli.*
Molecular Mass	The 165 amino acid recombinant protein has a predicted molecular mass of approximately 18.4 kD. The predicted N-terminal amino acid is Met.
Purity	≥ 98% by SDS-PAGE gel and HPLC analyses.
Formulation	Lyophilize from sterile 0.22 µm filtered protein solution is in PBS pH7.2.
Endotoxin Level	Less than 0.1 EU per µg protein as determined by the LAL method.
Concentration	Lyophilized recombinant protein is at 2 and 10 µg total protein
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for one month, at -20°C for six months, or at -70°C for one year. For maximum results, quick spin vial prior to opening. Reconstitute the protein in sterile water at 0.1 mg/ml. The protein can be aliquoted and stored at -20°C to -70°C. Stock solutions can also be prepared at 50 - 100 µg/mL in sterile buffer (PBS, HPBS, DPBS, or EBSS) containing carrier protein such as 0.2 - 1% BSA or HSA and stored in working aliquots at -20°C to -70°C. Avoid repeated freeze/thaw cycles.
Activity	Recombinant rat SCF induces the proliferation of human TF-1 cells in a dose-dependent manner. The proliferation was measured using the Deep Blue Cell Viability™ Kit (Cat. No. 424701). The ED_{50} for this effect is 20 – 60 ng/mL.
Application	Bioassay
Application Notes	BioLegend carrier-free recombinant proteins provided in lliophylized format are shipped on blue ice.

Antigen Details

Structure	Homodimer
Distribution	Fibroblast, keratinocytes, endothelial cells, and smooth muscle cells.

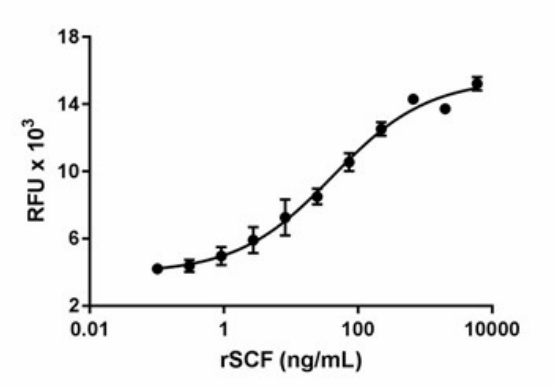
Function	SCF promotes growth, differentiation, and activation of mast cells, takes part in early stages of hematopoiesis, erythropoiesis, development of melanocytes, gametogenesis, and the survival of Cajal cells from the intestine.
Interaction	Mast cells, natural killer cells, dendritic cells, eosinophils, epithelial, endothelial, melanocytes, germen cells, cholangiocytes, platelets, myeloid leukaemia cells, and intestinal cells of Cajal.
Ligand/Receptor	c-kit (CD117)
Bioactivity	Rat SCF induces the proliferation of human TF-1 cells.
Cell Type	Hematopoietic stem and progenitors, Embryonic Stem Cells
Biology Area	Angiogenesis, Cell Biology, Immunology, Signal Transduction, Stem Cells
Molecular Family	Cytokines/Chemokines, Growth Factors

Antigen References

1. Zsebo KM, *et al.* 1990. *Cell.* 63(1):195-201
2. Lu HS, *et al.* 1996. *J Biol Chem.* 271:11309.
3. Heissig B, *et al.* 2002. *Cell.* 109:625.
4. Jin DK, *et al.* 2006. *Nat Med.* 12:557.
5. Krishnamoorthy N, *et al.* 2008. *Nat Med.* 14:565.
6. Ray P, *et al.* 2010. *Ann N Y Acad Sci.* 1183:104.
7. Yaniz-Galende E, *et al.* 2012. *Circ Res.* 111:1434.
8. Feng ZC, *et al.* 2015. *Diabetologia.* 58:654.

Gene ID	60427

Product Data



Recombinant rat SCF induces the proliferation of human TF-1 cells. The ED_{50} for this effect is 20 – 60 ng/mL.

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