

## SCF Protein, Human, Recombinant (aa 1-189, His)

### General Information

Synonyms:	DCUA;Kitl;FPHH;SCF;KL-1;SF;FPH2;MGF;SHEP7;C-kit ligand;KIT ligand
Protein Construction:	A DNA sequence encoding the amino acid (Met 1-Ala 189) of human SCF (P21583-1) extracellular domain was expressed, with a polyhistidine tag at the C-terminus. Predicted N terminal: Glu 26
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	P21583-1
Molecular Weight:	19.9 kDa (predicted); 22 kDa (reducing conditions)

### QC Testing

Biological Activity:	Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. The ED50 for this effect is 1-5 ng/mL.
Purity:	≥ 92 % as determined by SDS-PAGE. ≥ 90 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing 20 mM Tris, 500 mM NaCl, pH 8.0. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

**Reconstitution:**  
Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

**Stability & Storage:**

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

**Shipping:**

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Similar to Kit ligand precursor (C-kit ligand), also known as Stem cell factor (SCF), Mast cell growth factor (MGF), or Hematopoietic growth factor KL. SCF/C-kit ligand is the ligand of the tyrosine-kinase receptor encoded by the KIT locus. This ligand is a pleiotropic factor that acts in utero in germ cell and neural cell development, and hematopoiesis, all believed to reflect a role in cell migration. In adults, it functions pleiotropically, while mostly

noted for its continued requirement in hematopoiesis. SCF/C-kit ligand stimulates the proliferation of mast cells. This protein can augment the proliferation of both myeloid and lymphoid hematopoietic progenitors in bone marrow culture. It may act synergistically with other cytokines, probably interleukins SCF/C-kit ligand is the ligand for the tyrosine kinase receptor c-kit, which is expressed on both primitive and mature hematopoietic progenitor cells. In vitro, SCF/C-kit ligand synergizes with other growth factors, such as granulocyte colony-stimulating factor (G-CSF), granulocyte-macrophage colony-stimulating factor, and interleukin-3 to stimulate the proliferation and differentiation of cells of the lymphoid, myeloid, erythroid, and megakaryocytic lineages. In vivo, SCF/C-kit also synergizes with other growth factors and has been shown to enhance the mobilization of peripheral blood progenitor cells in combination with G-CSF. In phase I/II clinical studies administration of the combination of SCF and G-CSF resulted in a two- to threefold increase in cells that express the CD34 antigen compared with G-CSF alone.

### Reference

McNiece IK, et al. (1995) Stem cell factor. *J Leukoc Biol.* 58(1): 14-22.

Besmer P, et al. (1993) The kit-ligand (steel factor) and its receptor c-kit/W: pleiotropic roles in gametogenesis and melanogenesis. *Dev Suppl.* 1993:125-37.

Mekori YA, et al. (1993) IL-3-dependent murine mast cells undergo apoptosis on removal of IL-3. Prevention of apoptosis by c-kit ligand. *J Immunol.* 151(7): 3775-84.

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