

## Recombinant Human SCF Protein

### Product Name

Recombinant Human SCF Protein

### Size / Catalog Number

50µg / GMP-TL504-0050

100µg / GMP-TL504-0100

### Product Information

**Synonyms:** C-kit ligand, Mast cell growth factor (MGF), Stem cell factor

**Accession:** UniProt P21583-1

**Expressed Region:** Glu26-Ala189

**Tag:** C-terminal 6×His-tag

**Expression system:** HEK293 cells

**Predicted Molecular weight:** 19.3 kDa

**Purity:** > 95% as determined by SDS-PAGE

**Endotoxin:** < 0.1 EU per 1 µg of protein (LAL method)

**Activity:** Measured in a cell proliferation assay using Mo7e cells, corresponding to a specific activity of  $\geq 2.0 \times 10^5$  IU/mg.

**Form:** Lyophilized from sterile PBS (pH7.4), typically supplemented with 6% mannitol as a protectant.

### Background

Recombinant Human Stem Cell Factor (SCF) is a multifunctional cytokine produced by fibroblasts and endothelial cells that binds the c-Kit receptor, existing in soluble (~18.5 kDa dimer) and transmembrane forms via alternative splicing. During development, it regulates hematopoiesis (fetal liver/bone marrow), germ cell/neural development, and melanocyte localization; in adulthood, it maintains hematopoietic stem cell (HSC) homeostasis by governing survival, proliferation, differentiation, and mobilization within the bone marrow niche, while also stimulating mast cell growth. *In vitro*, SCF potently synergizes with cytokines like G-CSF, GM-CSF, and IL-3 to stimulate hematopoietic progenitor proliferation and differentiation; *in vivo*, combined with G-CSF, it clinically enhances peripheral blood CD34<sup>+</sup> cell yields by 2-3 fold versus G-CSF alone. This product is GMP manufactured in mammalian cells with strict control of residuals (host protein, nucleic acid) and pathogens, ensuring full traceability.

### Stability & Storage

**Lyophilized powder:** Stable for 12 months at -80°C or 6 months at -20°C when stored in the original sealed container under desiccant.

**Reconstitution:** Dissolve in sterile water for injection, 0.9% NaCl, or PBS (pH7.4), maintaining a final concentration  $\geq 100$  µg/mL to prevent adsorption.

**Handling:** Aliquot to avoid repeated freeze-thaw cycles.

### References

1. Geissler EN, Liao M, Brook JD, *et al.* Stem cell factor (SCF), a novel hematopoietic growth factor and ligand for c-kit tyrosine kinase receptor, maps on human chromosome 12 between 12q14.3 and 12qter. *Somat Cell Mol Genet.* 1991 Mar;17(2):207-14.

2. Flanagan JG, Chan DC, Leder P. Transmembrane form of the kit ligand growth factor is determined by alternative splicing and is missing in the Sld mutant. *Cell*. 1991 Mar 8;64(5):1025-35.
3. Anderson DM, Williams DE, Tushinski R, *et al*. Alternate splicing of mRNAs encoding human mast cell growth factor and localization of the gene to chromosome 12q22-q24. *Cell Growth Differ*. 1991 Aug;2(8):373-8.
4. Qiu X, Ping S, Kyle M, *et al*. Stem Cell Factor and Granulocyte Colony-Stimulating Factor Promote Remyelination in the Chronic Phase of Severe Traumatic Brain Injury. *Cells*. 2023 Feb 23;12(5):705.

### Intended Use

For research and manufacturing purposes only.