Sterile

#8925

Human Stem Cell Factor (hSCF)

Cell Signaling TECHNOLOGY®

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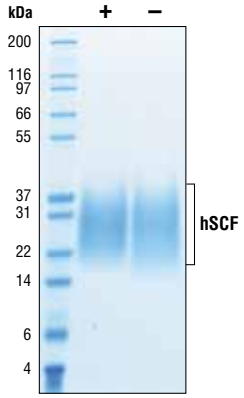
For Research Use Only. Not For Use In Diagnostic Procedures.

Source: Recombinant human SCF (hSCF) Glu26-Ala189 (Accession #P21583) was expressed in human 293 cells at Cell Signaling Technology.

Molecular Characterization: Recombinant hSCF contains no "tags" and the nonglycosylated protein has a calculated MW of 18,458. DTT-reduced and non-reduced protein migrate as 22-35 kDa polypeptides. Lower mobility and heterogeneity in SDS-PAGE are due to glycosylation. The expected amino-terminal EGICR of recombinant hSCF was verified by amino acid sequencing.

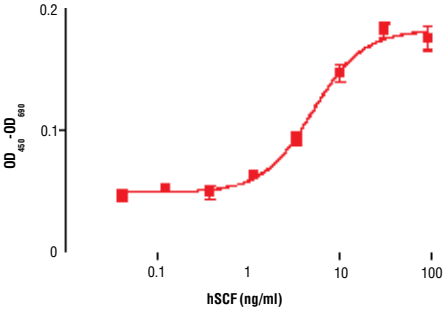
Endotoxin: Less than 0.01 ng endotoxin/1 μg hSCF.

Purity: >98% as determined by SDS-PAGE of 6 μg reduced (+) and non-reduced (-) recombinant hSCF. All lots are greater than 98% pure.

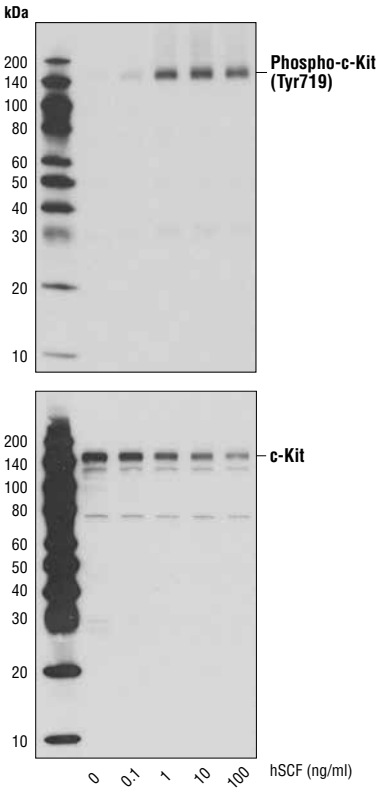


The purity of recombinant hSCF was determined by SDS-PAGE of 6 μg reduced (+) and non-reduced (-) recombinant hSCF and staining overnight with Coomassie Blue.

Bioactivity: The bioactivity of recombinant hSCF was determined in a M-07e cell proliferation assay. The ED_{50} of each lot is between 2-6 ng/ml.



◀ *The proliferation of M-07e cells treated with increasing concentrations of hSCF was assessed. After 48 hour treatment with hSCF, cells were incubated with a tetrazolium salt and the OD_{450} - OD_{650} was determined.*



Western blot analysis of extracts from M-07e cells untreated or treated with hSCF for 5 minutes, using Phospho-c-Kit (Tyr719) Antibody #3391 (upper) and c-Kit Antibody #3392 (lower)

Formulation: With carrier: Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.2 containing 20 μg BSA per 1 μg hSCF.

Carrier free: Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.2.

Reconstitution:
With carrier: Add sterile PBS or PBS containing 1% bovine or human serum albumin or 5-10% FBS to a final hSCF concentration of greater than 50 μg/ml. Solubilize for 30 minutes at room temperature with occasional gentle vortexing.

Carrier free: Add sterile PBS or PBS containing protein to minimize absorption of hSCF to surfaces. Solubilize for 30 minutes at room temperature with occasional gentle vortexing. Stock hSCF should be greater than 50 μg/ml.

Storage: Stable in lyophilized state at 4°C for 1 year after receipt. Sterile stock solutions reconstituted with carrier protein are stable at 4°C for 2 months and at -20°C for 6 months. Avoid repeated freeze-thaw cycles.

Maintain sterility. Storage at -20°C should be in a manual defrost freezer.

Applications: Optimal concentration for the desired application should be determined by the user.

Background: SCF is produced by endothelial cells, fibroblasts, keratinocytes, gut epithelial cells and tumor cells (1,2). SCF is critical for hematopoiesis and mast cell differentiation and has additional roles in survival and function of other cell types (1). Some tumor cell proliferation and invasiveness are promoted by SCF (3). Tumor-derived SCF appears to be involved in expansion of myeloid-derived suppressor cells that in-turn limits proliferation of tumor-infiltrating T-cells (4). SCF may have additional roles in the tumor microenvironment (2). SCF is either soluble or integral membrane and the form is dependant on variation in splicing or proteolytic release (1). SCF binds to the receptor tyrosine kinase, c-kit, and induces activation of the AKT, ERK, JNK and p38 pathways (5,6).

Background References:

(1) Broudy, V.C. (1997) *Blood* 90, 1345-64.

(2) Huang, B. et al. (2008) *Blood* 112, 1269-79.

(3) Yasuda, A. et al. (2006) *Mol Cancer* 5, 46.

(4) Pan, P.Y. et al. (2008) *Blood* 111, 219-28.

(5) Samayawardhena, L.A. and Pallen, C.J. (2008) *J Biol Chem* 283, 29175-85.

(6) Huang, H.M. et al. (2000) *Blood* 96, 1764-71.