Cytokines

Human Recombinant SCF

Stem cell factor

Catalog #	78062.1	10 µg
	78062	100 µg
	78062.2	1000 µg

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Product Description

Stem cell factor (SCF) is an early acting cytokine that plays a pivotal role in the regulation of embryonic and adult hematopoiesis. SCF promotes cell survival, proliferation, differentiation, adhesion, and functional activation of cells at multiple levels of the hematopoietic hierarchy. Together with other cytokines such as thrombopoietin and Flt3/Flk-2 Ligand, SCF is commonly used to promote expansion of primitive hematopoietic stem cells and multi-potent progenitor cells in culture (Martin et al.; Kent et al.). In synergy with various growth factors, including IL-2, IL-3, IL-6, IL-7, G-CSF, and erythropoietin, SCF increases proliferation and differentiation of myeloid and erythroid progenitor cells and a subset of lymphoid progenitor cells (Broudy). SCF is also a primary growth and activation factor for mast cells and eosinophils. It is produced by stromal cells in the fetal liver, bone marrow, and thymus, in the central nervous system, in keratinocytes, and in the gut mucosa, and can function as a chemotactic and chemokinetic factor.

SCF exists in two biologically active splice forms: a soluble and a transmembrane isoform. Upon binding to its receptor (c-Kit tyrosine kinase receptor; CD117), it activates PI3K, JAK/STAT, and MAPK pathways. SCF and signaling from c-Kit has also been reported to play an important role in pigmentation, fertility, vasculogenesis, motility of the gut via c-Kit positive interstitial cells of Cajal, and in the migration of neuronal stem and progenitor cells to sites of injury in the brain. Signals of proliferation and survival transmitted through c-Kit are also likely to contribute to the initiation and progression of many human malignancies (Lennartsson & Ronnstrand).

Product Information

Alternative Names:	Kit ligand, Mast cell growth factor, Steel factor, Stem Cell Factor
Accession Number:	P21583
Amino Acid Sequence:	MEGICRNRVT NNVKDVTKLV ANLPKDYMIT LKYVPGMDVL PSHCWISEMV VQLSDSLTDL LDKFSNISEG LSNYSIIDKL VNIVDDLVEC VKENSSKDLK KSFKSPEPRL FTPEEFFRIF NRSIDAFKDF VVASETSDCV VSSTLSPEKD SRVSVTKPFM LPPVA
Predicted Molecular Mass:	18.6 kDa
Species:	Human
Cross Reactivity:	Weakly active on mouse cells
Formulation:	Lyophilized from a sterile filtered aqueous solution containing acetic acid.
Source:	E. coli

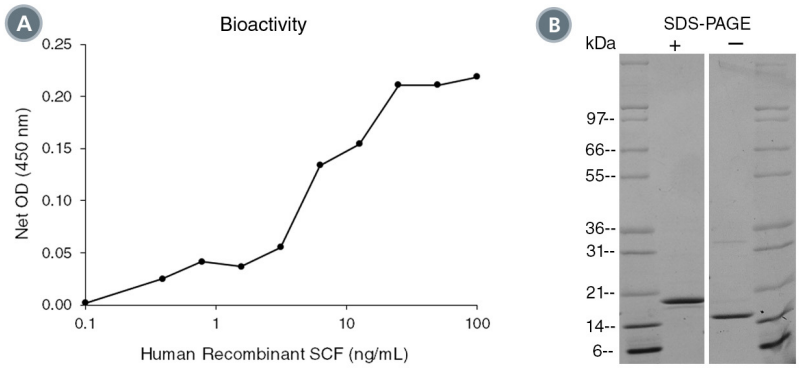
Specifications

Activity:	The specific activity is ≥ 6.6 x 10^4 units/mg (EC50 ≤ 15 ng/mL) as determined by a cell proliferation assay using TF-1 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

Storage:	Store at -20°C to -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Reconstitution:	Centrifuge vial before opening. Resuspend the product in 10 mM hydrochloric acid containing 0.1% bovine serum albumin (BSA) to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at 2 - 8°C for up to 1 month or at -20°C to -80°C for up to 3 months. Avoid repeated freeze-thaw cycles. NOTE: If reconstituted product will be used immediately BSA is not required.

Data



(A) The biological activity of Human Recombinant SCF was tested by its ability to promote the proliferation of TF-1 cells. Cell proliferation was measured after 72 hours of culture using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the above example is 4.2 - 6.3 ng/mL.
(B) 1 µg of Human Recombinant SCF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant SCF has a predicted molecular mass of 18.6 kDa.

Related Products

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References

Broudy VC. (1997) Stem cell factor and hematopoiesis. Blood 90(4): 1345–64.
Kent D et al. (2008) Regulation of hematopoietic stem cells by the steel factor/KIT signaling pathway. Clin Cancer Res 14(7): 1926–30.
Lennartsson J & Ronnstrand L. (2012) Stem Cell Factor Receptor/c-Kit: From Basic Science to Clinical Implications. Physiol Rev 92(4): 1619–1649.
Martin FH et al. (1990) Primary structure and functional expression of rat and human stem cell factor DNAs. Cell 63(1): 203–11.