Product Information

Stem Cell Factor, Human

Recombinant, Expressed in *Escherichia coli*, Cell Culture Tested

S7901

Store at −20 °C

Synonyms: c-*Kit* Ligand, KL, Steel Factor, MGF

Product Description

Stem Cell Factor [1], also called c-*kit* Ligand [2] (KL) or Mast Cell Growth Factor [3] (MGF), is a peptide growth factor/cytokine with broad activities, especially related to hematopoiesis. Among the many activities of SCF are the ability to act on early hematopoietic progenitor/stem cells and to stimulate the proliferation and survival of mast cells. Also, SCF is one of the most potent stimulators of multilineage progenitors (CFU-GEMM) in both human and murine bone marrow cells.[2,4] SCF acts synergistically with other growth factors, including erythropoietin, G-CSF, M-CSF, GM-CSF, IL-3, and IL-6, to increase the number and size of colonies of hematopoietic progenitors.[1,2,5] SCF appears to play an important role in the survival, proliferation, or migration of primordial germ cells and melanoblasts during both development [6,7] and maturation.[8]

Natural, human SCF is a 25–35 kDa glycoprotein (SDS-PAGE).[1-3,10] Under non-denaturing conditions, SCF appears to be a non-covalently linked dimer of 50–55 kDa.[10] SCF is synthesized as a transmembrane protein,[11,12] which is then cleaved, presumably at the cell surface, to yield a soluble protein.[13,14] An alternative form of SCF exists whereby the proteolytic cleavage site is spliced out, allowing the transmembrane section to remain intact and biologically active SCF (38 kDa) to remain attached to the cell surface.[11,13] The predominant message in many cells is the secreted form of SCF, but the attached (spliced) and secreted forms are expressed at similar levels in some cells. The receptor for SCF is the c-kit ligand,[15-17] a transmembrane 150–165 kDa glycoprotein belonging to the receptor tyrosine kinase subclass III family,[18] which includes receptors to PDGF and M-CSF. Human SCF is 500–1,000 fold less active on murine cells.[19]

The product is lyophilized from a 0.2 µM filtered solution containing 10 mM Sodium Phosphate, 50 mM Sodium Chloride, pH 7.5.

Predicted molecular mass

Monomer, 18.6 kDa (165 amino acids).

Purity

≥ 95% (SDS-PAGE) The biological activity of rhSCF is measured in a cell proliferation assay using TF1 human erythroleukemic cells.[20] ED_{50} is typically ≤ 15 ng/mL.

Endotoxin level

≤ 0.1 EU/µg (LAL test).

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet (SDS) for information regarding hazards and safe handling practices.

Reconstitution

The contents of the vial may be reconstituted using sterile water at 0.1 mg/mL. The stock solutions should be apportioned into working aliquots and stored at −70 °C or −20 °C. If aseptic technique is used, additional filtration should not be necessary and should be avoided due to possible adsorption of the cytokine onto the filter membrane.

Storage

Store the product at −20 °C. For extended storage, freeze in working aliquots at −70 °C or −20 °C. Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

References

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23249964 Rev 08/25