

Product Information

Stromal Cell-Derived Factor 1 α / pre-B cell Growth Stimulating Factor, human recombinant, expressed in *E. coli*

Catalog Number **S1577**
Storage Temperature $-20\text{ }^{\circ}\text{C}$

Synonyms: SDF-1 α , PBSF; IRH, SDF1, TLSF, TPAR1, chemokine (C-X-C motif) ligand 12, CXCL12, SCYB12

Product Description

Stromal Cell-Derived Factor 1 α (SDF-1 α) or pre-B Cell Growth Stimulation Factor (PBSF) was identified using signal sequence trap cloning. With this method, cDNAs have been cloned using mouse and human stromal cell lines.¹⁻³ This cytokine is widely accepted as a CXC chemokine of the intercrine-macrophage inflammatory protein superfamily.⁴ The gene has been mapped to chromosome 10q and is encoded by 4 exons. Expression of the human SDF1 gene is abundant in the pancreas, spleen, ovary, and small intestine.¹ The presence of a GC-rich sequence and the lack of a TATA box in the 5'-flanking region of the gene are consistent with ubiquitous expression.¹

SDF-1 α functions as a pre-B cell growth factor in the presence of IL-7 and a potent chemoattractant for T-lymphocytes, and monocytes.^{2,5} It has also been found to be a ligand for CXCR4 or the orphan receptor LESTR/fusin.^{4,5} By signaling through the receptor, SDF1 may serve as an inhibitor of HIV-1, which utilizes the LESTR/fusin receptor as a point of entry.⁵

This product is lyophilized from a 0.2 μm -filtered solution containing 10 μg SDF-1 α and 0.5 mg bovine serum albumin in PBS.

SDF-1 α cDNA encodes a polypeptide representing amino acid residues 22–89 of human CXCL12/SDF-1 α (Uniprot [P48061](#)).^{1,2} The mature protein shares 100% amino acid sequence homology with rhesus macaque and feline SDF-1 α . The 68 amino acid residue recombinant protein has a predicted molecular mass of ~8.0 kDa. The recombinant protein is prone to N-terminal proteolytic cleavage. Some preparations may contain a small amount of N-terminal truncated CXCL12/SDF-1 α that lacks three N-terminal residues.

The biological activity of recombinant human SDF1 α is measured in a cell migration assay for human T lymphocytes. The EC₅₀ value is defined as the effective concentration of chemokine that elicits 50% chemotactic response.

Purity: >97% (SDS-PAGE)

Endotoxin: ≤ 1 EU/ μgP

Precautions and Disclaimer

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

Preparation Instructions

Reconstitute the contents of the vial using sterile buffer or medium containing a minimum of 0.1% BSA or HSA to a stock concentration of ≥ 10 $\mu\text{g/ml}$. Additional filtration of the stock solution is **not** recommended as this may result in loss of product due to adsorption onto the filter membrane.

Storage/Stability

Store the lyophilized powder at $-20\text{ }^{\circ}\text{C}$. The sterile reconstituted solution can be stored at 2–8 $^{\circ}\text{C}$ for up to 1 month. For extended storage, freeze in working aliquots at $-20\text{ }^{\circ}\text{C}$. Avoid repeated freeze-thaw cycles. Do store in a frost-free freezer.

References

1. Shirozu, M. et al., Structure and chromosomal localization of the human stromal cell-derived factor 1 (SDF1) gene. *Genomics*, **28**, 495-500 (1995).
2. Nagasawa, T. et al., Molecular cloning and structure of a pre-B-cell growth-stimulating factor. *Proc. Natl. Acad. Sci. USA*, **91**, 2305-2309 (1994).
3. Tashiro, K. et al., Signal sequence trap: a cloning strategy for secreted proteins and type I membrane proteins. *Science*, **261**, 600-603 (1993).
4. Oberlin, E. et al., The CXC chemokine SDF-1 is the ligand for LESTR/fusin and prevents infection by T-cell-line-adapted HIV-1. *Nature*, **382**, 833-835 (1996).
5. Bleul, C.C. et al., The lymphocyte chemoattractant SDF-1 is a ligand for LESTR/fusin and blocks HIV-1 entry. *Nature*, **382**, 829-833 (1996).

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