

**DESCRIPTION**

<b>Source</b>	<i>E. coli</i> -derived Lys22-Lys89 Accession # P48061
<b>N-terminal Sequence Analysis</b>	Lys22
<b>Predicted Molecular Mass</b>	8.0 kDa

**SPECIFICATIONS**

<b>SDS-PAGE</b>	7 kDa, reducing conditions
<b>Activity</b>	Measured by its ability to chemoattract 5-10 day cultured human peripheral blood lymphocytes (PBL). The ED <sub>50</sub> for this effect is 3-9 ng/mL.  Measured by its ability to chemoattract BaF3 mouse pro-B cells transfected with human CXCR4. The ED <sub>50</sub> for this effect is 0.15-0.6 ng/mL.
<b>Endotoxin Level</b>	<0.01 EU per 1 $\mu$ g of the protein by the LAL method.
<b>Purity</b>	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 100 $\mu$ g/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**DATA**

<p><b>Bioactivity</b></p> <p>Recombinant Human/Rhesus Macaque/Feline CXCL12/SDF-1<math>\alpha</math> (Catalog # 350-NS/CF) chemoattracts the BaF3 mouse pro-B cells transfected with human CXCR4. The ED<sub>50</sub> for this effect is 0.15-0.6 ng/mL.</p>	<p><b>SDS-PAGE</b></p> <p>1 <math>\mu</math>g/lane of Recombinant Human/Rhesus Macaque/Feline CXCL12/SDF-1<math>\alpha</math> was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 7 kDa.</p>
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**BACKGROUND**

SDF-1 $\alpha$  and SDF-1 $\beta$  are the first cytokines initially identified using the signal sequence trap cloning strategy from a mouse bone-marrow stromal cell line. These proteins were subsequently also cloned from a human stromal cell line as cytokines that supported the proliferation of a stromal cell-dependent pre-B-cell line. SDF-1 $\alpha$  and SDF-1 $\beta$  cDNAs encode precursor proteins of 89 and 93 amino acid residues, respectively. SDF-1 $\alpha$  and SDF-1 $\beta$  are encoded by a single gene and arise by alternative splicing. The two proteins are identical except for the four amino acid residues that are present in the carboxy-terminus of SDF-1 $\beta$  and absent from SDF-1 $\alpha$ . The amino acid sequence of SDF-1/PBSF identified the protein to be a member of the chemokine  $\alpha$  subfamily that lacks the ELR domain. Unlike other known chemokine  $\alpha$  and  $\beta$  subfamily members that cluster on chromosomes 4 and 17, respectively, SDF-1/PBSF was mapped to chromosome 10q11.1. SDF-1/PBSF is highly conserved between species, with only one amino acid substitution between the mature human and mouse proteins. SDF-1/PBSF has been found to be a chemoattractant for T-lymphocytes and monocytes, but not neutrophils. SDF-1/PBSF was shown to be a ligand for CXCR4 (fusin/LESTR) receptor that functions as a co-receptor for lymphocyte-tropic HIV-1 strains. SDF-1/PBSF has been found to be a powerful inhibitor of infection by lymphocyte-tropic HIV-1 strains.

**References:**

1. Tashiro, K. *et al.* (1993) *Science* **261**:600.
2. Bleul, C. *et al.* (1996) *Nature* **382**:829.
3. Oberlin, E. *et al.* (1996) *Nature* **382**:833.