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### **Stromal Cell-Derived Factor-1 Alpha Human Recombinant (CXCL12), His tag CHEMOKINE**

**Catalog Number:** PRP-241CHM  
**Quantity:** 2 micrograms, 10 micrograms, 1 milligram  
**Format:** White lyophilized (freeze-dried) powder  
**Host:** *E. coli*

#### **Background:**

SDF-1 (stromal cell-derived factor-1) is a small cytokine belonging to the chemokine family that is officially designated Chemokine (C-X-C motif) ligand 12 (CXCL12). It is produced in two forms, SDF-1a/CXCL12a and SDF-1b/CXCL12b, by alternate splicing of the same gene. Chemokines are characterized by the presence of four conserved cysteines, which form two disulfide bonds. The CXCL12 proteins belong to the CXC chemokine group. The initial pair of cysteines in this group are separated by one amino acid. CXCL12 is strongly chemotactic for lymphocytes and has been implicated as an important cell coordinator during development. During embryogenesis it directs the migration of hematopoietic cells from the fetal liver to bone marrow. CXCL12 knockout mice died either before or within 1 hour of birth. CXCL12a also alters the electrophysiology of neurons. CXCL12 has been shown to be expressed in many mouse tissues including brain, thymus, heart, lung, liver, kidney, spleen, and bone marrow. The receptor for this chemokine is CXCR4, which was previously called fusin. This CXCL12-CXCR4 interaction used to be considered exclusive, unlike other chemokines and their receptors, but recently it was suggested that CXCL12 is also bound by the CXCR7 receptor. The gene for CXCL12 is located on human chromosome 10. Human and mouse CXCL12 and CXCR4 show a high degree of homology, 99% and 90% respectively.

#### **Specificity and Preparation:**

Stromal cell-derived factor-1 alpha (SDF-1a) human recombinant CXCL12 produced in *E. coli* is a non-glycosylated 78-amino acid polypeptide with a molecular weight of 9.2 kDa. The SDF-1a is fused to 10-amino acid His-Tag at N-terminus and purified by proprietary chromatographic techniques. The purity is greater than 95.0% as determined by SDS-PAGE. The protein was filtered (0.4  $\mu$ m) and lyophilized from a concentrated (0.5 mg/ml) solution containing 20 mM Tris buffer pH-7.5 and 20 mM sodium chloride.

Amino acid sequence: MKHHHHHHAS KPVSLSYRCP CRFFESHVAR ANVKHLKILN TPNCALQIVA RLKNNNRQVC IDPKLKWIQE YLEKALNK

#### **Usage and Storage:**

It is recommended to add deionized water to a working concentration approximately 0.5 mg/ml and let the lyophilized pellet dissolve completely. Product is not sterile! Please filter the product by appropriate sterile filter before using it in the cell culture.

Lyophilized material although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution, material should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Avoid repeated freezing and thawing. Gently spin down material before use; 5-10 seconds in a microfuge should be adequate.

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