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## Product Data Sheet

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Product Name: SDF 1a Human, His  
 Cat. No.: GP21209  
 Batch No.: 1

### Product Data

Purity	>98%	Source	Escherichia Coli.
Physical Appearance	solid	Shipping Condition	Shipped at Room temp.
Synonyms	SDF-1; CXCL12; Pre-B cell growth-stimulating factor; PBSF; hIRH; chemokine (C-X-C motif) ligand 12; SDF1; SDF1A; TPAR1; SCYB12; SDF-1a; TLSF-a.		
Amino Acid Sequence	MKHHHHHHAS KPVSLSYRCP CRFFESHVAR ANVKHLKILN TPNCALQIVA RLKNNNRQVC IDPKLKWIQE YLEKALNK.		
Solubility	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.		
Formulation	The protein was filtered (0.4µm) and lyophilized from a concentrated (0.5mg/ml) solution containing 20mM Tris buffer pH-7.5 and 20mM sodium chloride.		

### Introduction

SDF-1 (stromal cell-derived factor-1) is 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-1 $\alpha$ /CXCL12a and SDF-1 $\beta$ /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 group of CXC chemokines, whose initial pair of cysteines are separated by one intervening 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 foetal liver to bone marrow. Mice which were knocked-out for CXCL12 gene were lethal before the birth or within just 1 hour of life. As another role,

**Caution: Product has not been fully validated for medical applications. For research use only.**

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CXCL12a alters also the electrophysiology of neurons. CXCL12 was shown to be expressed in many tissues in mice (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 for other chemokines and their receptors), but recently it was suggested that CXCL12 is also bound by CXCR7 receptor. The gene for CXCL12 is located on human chromosome 10. In human and mouse both CXCL12 and CXCR4 show high identity of sequence: 99% and 90%, respectively.

### Stability

Lyophilized SDF1A although stable at room temperature for 3 weeks, should be stored desiccated below  $-18^{\circ}\text{C}$ . Upon reconstitution CXCL12 should be stored at  $4^{\circ}\text{C}$  between 2-7 days and for future use below  $-18^{\circ}\text{C}$ . For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

### Background

Stromal Cell-Derived Factor-1 alpha Human Recombinant produced in E.Coli is a non-glycosylated, Polypeptide chain containing 78 amino acids, having a molecular mass of 9.2 kDa. The SDF-1a is fused to 10 amino acids His-Tag at N-terminus and purified by proprietary chromatographic techniques.

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