

Recombinant Rat Stromal Cell-Derived Factor-1 alpha (rr SDF-1a/ CXCL12)

Synonyms: SDF-1, CXCL12, Pre-B cell growth-stimulating factor (PBSF), chemokine (C-X-C motif) ligand 12, Thymic lymphoma cell-stimulating factor (TLSF).

Introduction: SDF-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 α /CXCL12a and SDF-1 β /CXCL12b, by alternate splicing of the same gene. Chemokines are characterized by the presence of four conserved cysteines which form two disulfide bonds. The SDF-1 proteins belong to the group of CXC chemokines whose initial pair of cysteines are separated by one intervening amino acid. SDF-1 is strongly chemotactic for lymphocytes and has been implicated as an important cell co-ordinator during development. During embryogenesis it directs the migration of hematopoietic cells from foetal liver to bone marrow. Mice which were knocked-out for SDF-1 gene were lethal before the birth or within just 1 hour of life. As another role SDF-1a alters also the electrophysiology of neurons. SDF-1 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 SDF-1 is located on human chromosome 10. In human and mouse both SDF-1 and CXCR4 show high identity of sequence: 99% and 90%, respectively.

Description: Recombinant rat SDF-1a produced in E.Coli is a non-glycosylated polypeptide chain containing 68 amino acids and having a molecular mass of 7.9 kDa. The SDF-1a is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a concentrated (1 mg/ml) sterile solution containing 20mM Phosphate buffer pH-7.4 and 150mM NaCl.

Solubility: It is recommended to reconstitute the lyophilized rr SDF-1a in sterile 18M Ω -cm H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rr SDF-1a although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rr SDF-1a 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). Please prevent freeze-thaw cycles.

Purity: Greater than 97.0% as determined by:

- (a) Analysis by RP-HPLC.
- (b) Analysis by SDS-PAGE.

Biological Activity: The specific activity as determined by its ability to chemoattract human peripheral blood monocytes at 50-100 ng/ml.

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<i>medium</i>	10 μ g	Cat.N°	13343363
<i>large</i>	50 μ g	Cat.N°	13343365
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