

Recombinant Rat CXCL12/SDF-1 β (carrier-free)

Catalog# / Size	778802 / 10 μ g 778804 / 25 μ g
Regulatory Status	RUO
Other Names	Stromal Cell-Derived Factor 1, SDF-1, SDF1, C-X-C Motif Chemokine 12, C-X-C Motif Chemokine Ligand 12, SCYB12
Description	SDF-1 β (stromal cell derived factor 1) also known as CXCL12 belongs to the CXCL chemokine family. Six isoforms of SDF-1 have been described: SDF-1 α , SDF-1 β , SDF-1 γ , SDF-1 δ , SDF-1 ϵ , and SDF-1 ϕ . SDF-1 is expressed by many organs, and it is most abundantly expressed in the pancreas, spleen, ovary, and small intestine. SDF-1 and its receptor CXCR4 are involved in the regulation of migration, survival, and development of multiple cell types, including human hematopoietic CD34 ⁺ /CD38 ⁷ /low and stromal STRO-1 ⁺ stem cells. Stress-induced modulations in SDF-1 and CXCR4 levels leads to the recruitment of immature and maturing leukocytes from the BM reservoir to damaged organs as part of a host defense and repair mechanism. The SDF-1/CXCR4 system is involved in the establishment of organ metastasis in different cancers, for example in lymph node metastasis, in breast cancer and oral squamous cell carcinoma (SCC), and peritoneal metastasis in ovarian cancer. SDF-1 also binds to CXCR7, but it does not trigger typical chemokine signal transduction. CXCR7 is a scavenger receptor and regulates the extracellular accessibility of SDF-1. CXCR7 forms a dimer with CXCR4 and regulates SDF-1-mediated G protein signaling. CXCR4 and CXCR7 are involved in development as well as in cancer.

Product Details

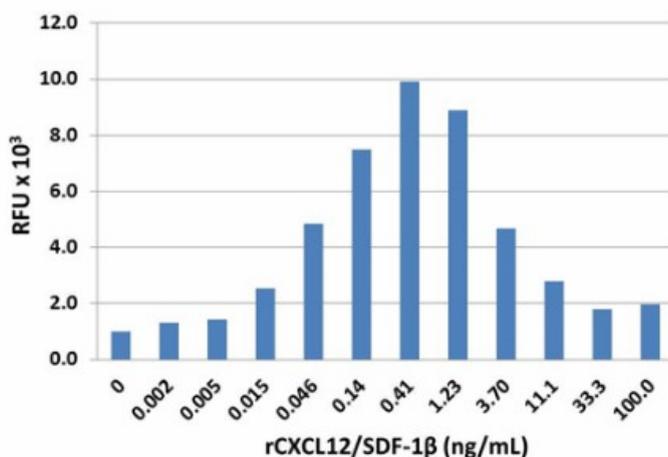
Source	Rat SDF-1 β , amino acids (Lys22-Lys89) (Accession # Q80YV8) was expressed in <i>E. coli</i> .
Molecular Mass	The 68 amino acid recombinant protein has a predicted molecular mass of approximately 7.92kD. The DTT-reduced and non-reduced protein migrate at approximately 10kD and 15kD respectively by SDS-PAGE. The predicted N-terminal amino acid is Lys.
Purity	>95%, as determined by Coomassie stained SDS-PAGE.
Formulation	0.22 μ m filtered protein solution is in PBS pH 7.2.
Endotoxin Level	Less than 0.1 EU per μ g protein as determined by the LAL method.
Concentration	10 and 25 μ g sizes are bottled at 200 μ g/mL.
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 μ g/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week and stored at -20°C or colder for up to 3 months. Avoid repeated freeze/thaw cycles.
Activity	Rat CXCL12/SDF-1 β chemoattracts Ba/F3 - hCXCR4 transfectants in a dose dependent manner. The migrated cells were measured using the Deep Blue Cell Viability™ Kit (Cat. No. 424701). The ED ₅₀ = 0.025 - 0.125 ng/mL.
Application	Bioassay
Application Notes	BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee . If you have any concerns, contact us at tech@biolegend.com .

Antigen Details

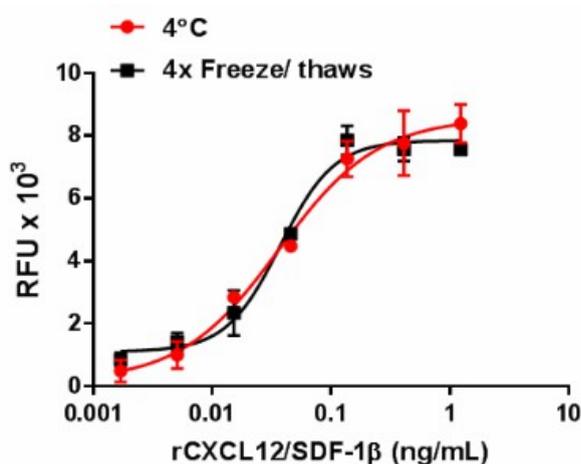
Structure	Monomer
Distribution	Widely expressed in endothelial and stromal cells.
Function	SDF-1 chemoattracts peripheral blood T cells, lamina propria T cells, and B cells. The SDF-1/CXCR4 interaction mobilizes CD34 ⁺ progenitors to the peripheral blood and participates in the homing of stem cells to their specific niches. SDF-1 induces proliferation in pancreatic intraepithelial neoplasia cells (PanIN). SDF-1 is a constitutive chemokine involved in lung, brain, joint, and intestine inflammation.
Interaction	T lymphocytes, B cells, monocytes, macrophages, tissue-committed stem/progenitor cells (TCSCs), mast cells, and vascular smooth muscle cells (VSMCs).
Ligand/Receptor	CXCR4 and CXCR7
Bioactivity	Chemoattracts Ba/F3-hCXCR4 transfectants
Cell Type	Endothelial cells
Biology Area	Apoptosis/Tumor Suppressors/Cell Death, Cell Biology, Immunology, Signal Transduction, Transcription Factors
Molecular Family	Cytokines/Chemokines
Antigen References	<ol style="list-style-type: none"> 1. Shirozu M, <i>et al.</i> 1995. <i>Genomics</i> 28:495-500. 2. Muller A, <i>et al.</i> 2001. <i>Nature</i> 410:50-6. 3. Dar A, <i>et al.</i> 2006. <i>Exp. Hematol.</i> 34:967-75. 4. Burns JM, <i>et al.</i> 2006. <i>J. Exp. Med.</i> 203:2201. 5. Gelmini S, <i>et al.</i> 2008. <i>J. Endocrinol. Invest.</i> 31:809-19. 6. Zlotnik A. 2008. <i>J. Pathol.</i> 215:211-3. 7. Levoye A, <i>et al.</i> 2009. <i>Blood</i> 113:6085. 8. Naumann U, <i>et al.</i> 2010. <i>PLoS One.</i> 5:e9175.

Gene ID [24772](#)

Product Data



Rat CXCL12/SDF-1 β chemoattracts Ba/F3-hCXCR4 transfectants in a dose dependent manner. The ED₅₀ for this effect is 0.025 - 0.125 ng/mL.



Stability testing for rat CXCL12/SDF-1 β . Rat CXCL12/SDF-1 β was aliquoted in PBS at 0.2 mg/mL and one aliquot was kept at 4°C (control) and another was frozen and thawed four times (4x Freeze/Thaws). After this procedure, the samples were tested by their property to chemoattract Ba/F3-hCXCR4 transfectants.

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