

Recombinant Human CXCL12 (SDF-1 β) (carrier free)

Catalog# / Size	587702 / 10 μ g 587704 / 25 μ g 587706 / 100 μ g
Regulatory Status	RUO
Other Names	Pre-B-cell growth-stimulating factor (PBSF), stromal cell derived factor 1 isoform beta precursor (SDF-1 β)
Description	CXCL12 β is constitutively expressed by stromal cells. SDF-1 α (89 amino acids) and SDF-1 β (93 amino acids) are derived from the CXCL12 gene by alternative splicing. They have identical amino acid sequences, differing only by the addition of four amino acids at the carboxy-terminus of the β form. CXCL12 α and β are ubiquitously expressed, and it has been suggested that their activity is regulated through differential proteolytic processing. Proteases present in serum process CXCL12 α initially at the carboxy-terminus (through carboxypeptidase N) and subsequently at the amino-terminus (through CD26); while CXCL12 β is only processed at the amino-terminus. These proteolytic processes affect the chemokine's properties to bind to heparin and cells, and stimulate proliferation and chemotaxis. CXCL12 α is inactivated by other enzymes such as metalloproteinases, serine proteases, and leukocyte elastase. CXCL12/CXCR4 pair plays a key role in maintaining proliferation and survival of bone marrow stem cell subpopulations under stress conditions. Also, CXCL12 is highly expressed in bone marrow stromal stem cells and regulates growth and survival. CXCL12 promotes survival by inducing anti-apoptotic proteins and decreasing apoptotic proteins, and increasing transcription of cell survival genes. Data suggests that CXCL12 β mediates cells' survival by enhancing autophagy in bone marrow mesenchymal stem cells.

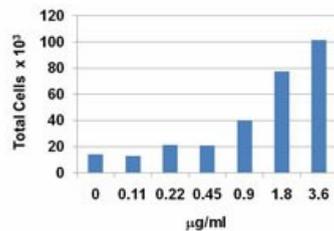
Product Details

Source	Human CXCL12, amino acids (Ser19-Met93) (Accession# NM_000609) was expressed in <i>E. coli</i> .
Molecular Mass	The 74 amino acid recombinant protein has a predicted molecular mass of approximately 8.8 kD. The DTT-reduced and non-reduced protein migrate at approximately 13 and 15 kD by SDS-PAGE respectively. The N-terminal amino acid is Ser.
Purity	>95%, as determined by Coomassie stained SDS-PAGE.
Formulation	0.22 μ m filtered protein solution is in PBS.
Endotoxin Level	Less than 0.01 ng per μ g cytokine as determined by the LAL method.
Concentration	10 and 25 μ g sizes are bottled at 200 μ g/mL. 100 μ g size and larger sizes are lot-specific and bottled at the concentration indicated on the vial. To obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools.
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	Bioactivity was measured by its property to chemoattract human T cells in a dose dependent manner.
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 .
Additional Product Notes	View more applications data for this product in our Scientific Poster Library .

Antigen Details

Structure	Chemokine
Distribution	Expressed by bone marrow stromal cells, endothelial cells, epithelial cells, pericytes, dendritic cells, fibroblasts
Function	CXCL12 is a constitutive chemokine involved in lung, brain, joint, and intestine inflammation. CXCL12 is chemotactic for T, B, and cancer cells. CXCL12/CXCR4 pair plays a role in mobilization of CD34+ progenitors to peripheral blood. CXCL12 is important in morphogenesis, angiogenesis, and cancer metastasis.
Interaction	Endothelial cells, epithelial cells, T and B cells, monocytes
Ligand/Receptor	CXCR4
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. Nagasawa T, <i>et al.</i> 1994 <i>Proc. Natl. Acad. Sci. USA</i> 91:2305.2. Muller A, <i>et al.</i> 2001. <i>Nature</i> 410:50.3. Valenzuela-Fernandez A, <i>et al.</i> 2002. <i>J. Biol. Chem.</i> 277:15677.4. De La Luz Sierra M, <i>et al.</i> 2004. <i>Blood</i> 103:2452.5. Kortesidis A, <i>et al.</i> 2005. <i>Blood</i> 105: 3793.6. Davis DA, <i>et al.</i> 2005. <i>Blood</i> 105:4561.7. Zlotnik A, 2008. <i>J. Pathol.</i> 215:211.8. Herberg S, <i>et al.</i> 2013 PLoS One 8:e58207.
Gene ID	6387

Product Data



Human T cells attracted by human CXCL12 β .

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