

Recombinant Mouse CXCL12/SDF-1 Protein

Catalog No.: RP01877 **Recombinant**

Sequence Information

Species	Gene ID	Swiss Prot
Mouse	20315	P40224-1

Tags
NO-tag

Synonyms

Cxcl12; Stromal cell-derived factor 1; SDF-1; 12-O-tetradecanoylphorbol 13-acetate repressed protein 1; TPAR1; C-X-C motif chemokine 12; Pre-B cell growth-stimulating factor; PBSF; Thymic lymphoma cell-stimulating factor; TLSF; Sdf1

Product Information

Source	Purification
Pichia	

Calculated MW	Observed MW
7.98 kDa	10-12 kDa

Endotoxin
<1 EU/μg of the protein by LAL method.

Formulation

Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.4.

Reconstitution

Centrifuge the vial before opening. Reconstitute to a concentration of 0.1-0.5 mg/mL in sterile distilled water. Avoid vortex or vigorously pipetting the protein. For long term storage, it is recommended to add a carrier protein or stabilizer (e.g. 0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose), and aliquot the reconstituted protein solution to minimize freeze-thaw cycles.

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Background

Mouse Cxcl12 is a secreted and highly conserved protein which belongs to the intercrine alpha (chemokine Cx) family. CXCL12 is widely expressed in various organs including brain, kidney, skeletal muscle, heart, liver, and lymphoid organs. Cxcl12 activates the C-X-C chemokine receptor CXCR4 to induce a rapid and transient rise in the level of intracellular calcium ions and chemotaxis. It also binds to atypical chemokine receptor ACKR3 which activates the beta-arrestin pathway and acts as a scavenger receptor for SDF-1. Cxcl12 has several critical functions during embryonic development such as B-cell lymphopoiesis, myelopoiesis in bone marrow and heart ventricular septum formation. Cxcl12 plays an important role in acting as a positive regulator of monocyte migration and a negative regulator of monocyte adhesion via the LYN kinase. It stimulates migration of monocytes and T-lymphocytes through its receptors, CXCR4 and ACKR3, and decreases monocyte adherence to surfaces coated with ICAM-1, a ligand for beta-2 integrins. SDF1A/CXCR4 signaling axis inhibits beta-2 integrin LFA-1 mediated adhesion of monocytes to ICAM-1 through LYN kinase. It also plays a protective role after myocardial infarction, induces down-regulation and internalization of ACKR3 expressed in various cells and stimulates the proliferation of bone marrow-derived B progenitor cells in the presence of IL-7 as well as growth of the stromal cell-dependent B-cell clone DW34 cells.

Basic Information

Description

Recombinant Mouse CXCL12/SDF-1 Protein is produced by Pichia expression system. The target protein is expressed with sequence (Lys22-Lys89) of mouse CXCL12/SDF-1 alpha (Accession #P40224) fused with no tag.

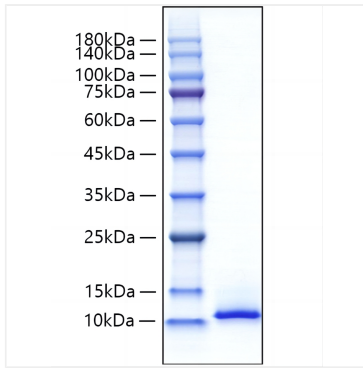
Bio-Activity

Measured by its ability to chemoattract MOLT4 cells. The ED₅₀ for this effect is 8.49-33.94 ng/mL, corresponding to a specific activity of 2.95 × 10⁴ ~ 1.18 × 10⁵ units/mg.

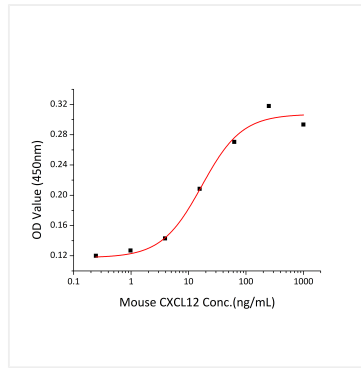
Storage

Store at -20°C. Store the lyophilized protein at -20°C to -80°C up to 1 year from the date of receipt. After reconstitution, the protein solution is stable at -20°C for 3 months, at 2-8°C for up to 1 week. Avoid repeated freeze/thaw cycles.

Validation Data



Recombinant Mouse CXCL12/SDF-1 Protein was determined by SDS-PAGE with Coomassie Blue, showing a band at 10-15 kD.



Recombinant Mouse CXCL12/SDF-1 chemoattract MOLT4 cells. The ED_{50} for this effect is 8.49-33.94 ng/mL, corresponding to a specific activity of $2.95 \times 10^4 \sim 1.18 \times 10^5$ units/mg.