Cytokines

Mouse Recombinant SDF-1 alpha (CXCL12)

Stromal cell-derived factor 1 alpha

Catalog #	78121	5 µg
	78121.1	25 µg

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Product Description

Stromal cell-derived factor 1 alpha (SDF-1α) is a member of the CXC group of chemokines that binds to the G-protein coupled receptor, CXCR4, to regulate migration, proliferation, differentiation, and survival of many cell types including hematopoietic stem cells, B cells, and T cells. It is produced by bone marrow stromal cells, osteoblasts, endothelial cells, and neuronal cells. SDF-1α was first identified as the pre-B-cell growth-stimulating factor (PBSF) in the murine bone marrow-derived stromal cell line, PA6, in the growth of B cell precursors (Hayashi et al.). SDF-1α primarily regulates cell motility during development and adulthood, including the homing of hematopoietic stem cells and neutrophils to fetal bone marrow during ontogeny (Ara et al. 2003a) and the recruitment of endothelial progenitor cells from bone marrow during angiogenesis in adulthood (Zheng et al.). In addition to its role in hematopoiesis, the SDF-1α/CXCR4 signaling pathway is also essential for the homing of primordial germ cells to gonads (Ara et al. 2003b), the migration of granule cells in the cerebellum during neurogenesis (Zou et al.), and the migration of breast cancer cells to sites of metastasis (Muller et al.).

Product Information

Alternative Names:	CXCL12, PBSF, SDF-1 α, Stromal cell-derived factor-1
Accession Number:	Q4FJL5
Amino Acid Sequence:	KPVSLSYRC PCRFFESHIA RANVKHLKIL NTPNCALQIV ARLKNNNRQV CIDPKLKWIQ EYLEKALNK
Predicted Molecular Mass:	8 kDa
Species:	Mouse
Cross Reactivity:	Human
Formulation:	Lyophilized after dialysis against phosphate-buffered saline.
Source:	CHO

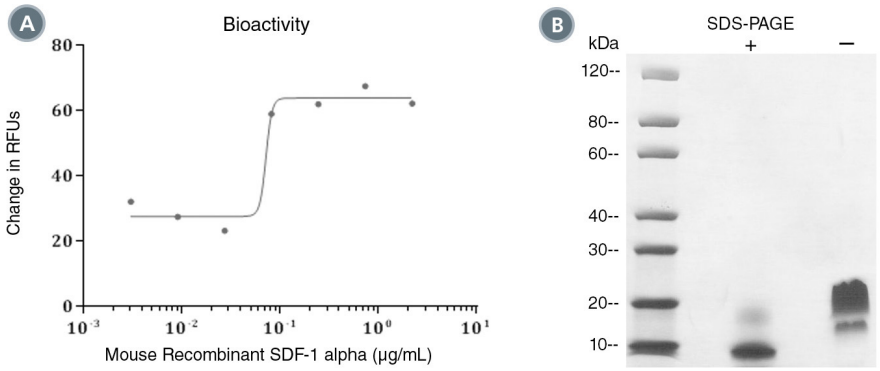
Specifications

Activity:	The specific activity is ≥ 6.7 x 10^2 units/mg (EC50 ≤ 1.5 µg/mL) as determined by Ca2+ mobilization assay in CHO-K1/Gα15/hCXCR4 cells (human Gα15 and mCXCR4 stably expressed in CHO-K1 cells).
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.2 EU/µg protein.

Preparation and Storage

Storage:	Store at -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Resuspend the product in sterile water or phosphate-buffered saline to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at 2 - 8°C for up to 1 week or at -20°C to -80°C for up to 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Mouse Recombinant SDF-1 alpha (CXCL12) was tested by its ability to mobilize Ca2+ in CHO-K1/Gα15/hCXCR4 cells (human Gα15 and mCXCR4 stably expressed in CHO-K1 cells). Ca2+ mobilization was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which Ca2+ mobilization is at 50% of maximum. The EC50 in the above example is less than 1.5 µg/mL.
(B) 2 µg of Mouse Recombinant SDF-1 alpha (CXCL12) was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, please visit our website at www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

Ara T et al. (2003a) Long-term hematopoietic stem cells require stromal cell-derived factor-1 for colonizing bone marrow during ontogeny. Immunity 19: 257–67.
Ara T el al. (2003b) Impaired colonization of the gonads by primordial germ cells in mice lacking a chemokine, stromal cell-derived factor-1 (SDF-1). Proc Natl Acad Sci 100(9): 5319–23.
Hayashi S et al. (1990) Stepwise progression of B lineage differentiation supported by interleukin 7 and other stromal cell molecules. J Exp Med 171(5): 1683–95.
Muller A et al. (2001) Involvement of chemokine receptors in breast cancer metastasis. Nature 410: 50–56.
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Zou YR et al. (1998) Function of the chemokine receptor CXCR4 in haematopoiesis and in cerebellar development. Nature 393: 591–4.