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Products	Human SDF-1α, research grade. Recombinant human stromal cell-derived factor 1α.										
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10	130-093-996										
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Biological activity	The ED ₅₀ is typically between 5–50 ng/mL. Peak effects are observed at approximately 100 ng/mL, whereas concentrations ≥250 ng/mL result in a decreased chemotactic activity. ▲ Note: The ED ₅₀ is determined by Transwell® chemotaxis assay using U-937 cells (provided by DSMZ).										
Primary structure	Single, non-glycosylated polypeptide chain (68 amino acid residues) without N-terminal methionine.										
Molecular mass	8.0 kDa.										
Source	Produced in <i>E. coli</i> .										
Product format	Lyophilized from a filtered (0.2 µm) buffer solution.										
Stabilizer	Mannitol and trehalose.										
Purity	>97% as determined by SDS-PAGE analysis.										
Endotoxin level	Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.										
Storage	Lyophilized Human SDF-1α, research grade should be stored at –20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at –20 °C or below. Avoid repeated freeze-thaw cycles.										
Reconstitution	It is recommended to reconstitute lyophilized Human SDF-1α, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.										

1.1 Background information

Stromal cell–derived factor-1 (SDF-1), also called CXCL12 or CXC motif chemokine 12, is a small cytokine with chemotactic activity. The sequence of SDF-1 is highly conserved among the species. Mouse SDF-1 differs only in one amino acid from human SDF-1 and therefore shows cross-reactivity. SDF-1 binds to the G-protein-coupled seven-transmembrane receptor CXCR4 and induces a rapid and transient rise in the level of intracellular calcium ions and chemotaxis. CXCR7 has been identified as another seven-transmembrane receptor for SDF-1, suggesting a role for SDF-1 in several aspects of tumorigenesis. *In vitro*, SDF-1 is a potent chemoattractant for T lymphocytes and monocytes, but not for neutrophils. Furthermore SDF-1 acts as a chemoattractant for CD34⁺ human hematopoietic progenitor cells *in vivo* and *in vitro*, as well as for mesenchymal stem cells *in vitro*. SDF-1 is implicated in neuronal migration, neural development, brain inflammation, and tumor growth *in vivo*.

1.2 Applications

Human SDF-1α may be used for a variety of applications, including:

- Migration and homing assays.
- *In vitro* angiogenesis assays (cell outgrowth, proliferation, and tube formation).
- Adhesion assays.
- Studies on tumorigenesis, organogenesis, neuronal development, and autoimmune diseases.

Optimal concentration for a specific application should be determined by a dose-response experiment.

Refer to www.miltenyibiotec.com for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com for local Miltenyi Biotec Technical Support contact information.

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