SDF-1 beta/CXCL12 Protein, Human (72a.a)

Cat. No.:	HY-P7287
Synonyms:	rHuSDF-1β/CXCL12; C-X-C motif chemokine 12; PBSF
Species:	Human
Source:	E. coli
Accession:	P48061 (K22-M93)
Gene ID:	6387
Molecular Weight:	Approximately 11 kDa

PROPERTIES

AA Sequence	K P V S L S Y R C P C R F F E S H V A R A N V K H L K I L N T P N C A L Q I V A R L K N N N R Q V C I D P K L K W I Q E Y L E K A L N K R F K M
Biological Activity	Full biological activity determined by a chemotaxis bioassay using PHA and rHuIL-2 activated human peripheral blood T-lymphocytes is in a concentration range of 20-80 ng/ml.
Appearance	Lyophilized powder
Formulation	Lyophilized after extensive dialysis against PBS, pH 7.4 or 50 mM Tris-HCL, 200 mM NaCL, 500 mM arginine, pH 8.0.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	The chemokine stromal-derived factor-1 (SDF-1), which is constitutively expressed in most tissues as SDF-1α and SDF-1β resulting from alternative gene splicing, regulates hematopoiesis, lymphocyte homing, B-lineage cell growth, and angiogenesis[1][2]. SDF-1β is assigned to the intercrine cytokine family (chemokines) which is characterized by four conserved cysteines that form two disulfide bonds. Furthermore its expression is found in all organs except in blood cells[3]. SDF-1β which is virtually the same as SDF-1α, except in that the fourth exon consists of only four residues attached to a C-terminus, shows very similar activity in vitro and in tissues, but is twice as potent in the blood. SDF-1α comprises 3 exons and encodes a protein of 89 amino acids whereas SDF-1β consists of 4 exons and encodes a protein of 93 amino acids. Both

isoforms are highly similar regarding their sequences with the only difference of 4 additional amino acids at the C-terminus of SDF1β[1][2]. In addition, SDF-1β is shown to be a sufficient factor capable of supporting rodent B-cell lymphopoiesis. SDF-1β is expressed less abundantly and seems to be related to the vascular system. Its greater resistance to proteolysis within the blood predispose it to this role[3].

Endothelial cells of cerebral microvessels in mice express SDF-1β selectively. Its upregulation is found following focal cerebral ischemia and is associated with the infiltration of CXCR4-expressing peripheral blood cells, such as macrophages. SDF-1β also has a greater effect on angiogenesis in human microvascular endothelial cells (HMEC)[3]. Compared with SDF-1α, SDF-1β is more resistant to blood-dependent degradation, stimulates angiogenesis and is present in highly vascularized organs such as: the liver, spleen and kidneys[4].

REFERENCES

[1]. Maria De La Luz Sierra, et al. Differential processing of stromal-derived factor-1alpha and stromal-derived factor-1beta explains functional diversity. Blood. 2004 Apr 1;103(7):2452-9.

[2]. Zheng Jiang, et al. Contribution of SDF-1α/CXCR4 signaling to brain development and glioma progression. Neurosignals. 2013;21(3-4):240-58.

[3]. Miroslaw Janowski. Functional diversity of SDF-1 splicing variants. Cell Adh Migr. 2009 Jul-Sep;3(3):243-9.

[4]. Kleanthis Fytianos, et al. Anti-Fibrotic Effect of SDF-1β Overexpression in Bleomycin-Injured Rat Lung. Pharmaceutics. 2022 Aug 27;14(9):1803.

[5]. Kryczek I, et al. Stroma-derived factor (SDF-1/CXCL12) and human tumor pathogenesis. Am J Physiol Cell Physiol. 2007 Mar;292(3):C987-95.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA