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SDF 1a Human

Stromal Cell-Derived Factor-1 Alpha Human Recombinant (CXCL12)
CHK0156

Product Overview

Name	SDF 1a Human

Description

Stromal Cell-Derived Factor-1 Alpha Human Recombinant (CXCL12)

Accession (Primary)	P48061

Synonyms

SDF-1, CXCL12, Pre-B cell growth-stimulating factor, PBSF, hIRH, chemokine (C-X-C motif) ligand 12, SDF1, SDF1A, TPAR1, SCYB12, SDF-1a, TLSF-a.

Introduction

SDF-1 (stromal cell-derived factor-1) is small cytokine belonging to the chemokine family that is officially designated Chemokine (C-X-C motif) ligand 12 (CXCL12). It is produced in two forms, SDF-1?/CXCL12a and SDF-1?/CXCL12b, by alternate splicing of the same gene. Chemokines are characterized by the presence of four conserved cysteines, which form two disulfide bonds. The CXCL12 proteins belong to the group of CXC chemokines, whose initial pair of cysteines are separated by one intervening amino acid. CXCL12 is strongly chemotactic for lymphocytes and has been implicated as an important cell co-ordinator during development. During embryogenesis it directs the migration of hematopoietic cells from foetal liver to bone marrow. Mice which were knocked-out for CXCL12 gene were lethal before the birth or within just 1 hour of life. As another role, CXCL12a alters also the electrophysiology of neurons. CXCL12 was shown to be expressend in many tissues in mice (including brain, thymus, heart, lung, liver, kidney, spleen and bone marrow). The receptor for this chemokine is CXCR4, which was previously called fusin. This CXCL12-CXCR4 interaction used to be considered exclusive (unlike for other chemokines and their receptors), but recently it was suggested that CXCL12 is also bound by CXCR7 receptor. The gene for CXCL12 is located on human chromosome 10. In human and mouse both CXCL12 and CXCR4 show high identity of sequence: 99% and 90%, respectively.

Source

Escherichia Coli.

Physical Appearance

Sterile Filtered White lyophilized (freeze-dried) powder.

Formulation

The protein was lyophilized from a concentrated (1 mg/ml) sterile solution containing no additives.

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Stability

Lyophilized SDF-1a although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution CXCL12 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity

Greater than 98.0% as determined by: (a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE.

Amino acid sequence

KPVSLSYRCP CRFFESHVAR ANVKHLKILN TPNCALQIVA RLKNNNRQVC IDPKLKWIQE YLEKALNK

Biological Activity

The specific activity as determined by its ability to chemoattract human peripheral T cells activated with PHA and IL-2 using a concentation of 20-80 ng/ml corresponding to a Specific Activity of 12,500-50,000IU/mg.

Solubility

It is recommended to reconstitute the lyophilized Stromal Cell-Derived Factor-1a in sterile 18MΩ-cm H2O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

References

1.T itle : Stromal Cell-Derived Factor-1a Promotes Neuroprotection, Angiogenesis, and Mobilization/Homing of Bone Marrow- Derived Cells in Stroke Rats. Publication: THE JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS Copyright © 2008 by The American Society for Pharmacology and Experimental Therapeutics JPET 324:834–849, 2008. Vol. 324, No. 2 127746/3301181 Printed in U.S.A. Link: SDF 1a prospec publication Application: Intracerebral administration of SDF-1 resulted in neuroprotection against neurotoxic insult, and it induced increased BM-derived cell targeting to the ischemic brain, thereby reducing the volume of cerebral infarction and improving neural plasticity. 2. Title :MECHANISMS OF BIOMATERIAL MEDIATED FIBROTIC RESPONSES AND STRATEGIES TO IMPROVE TISSUE REACTIONS TO BIOMATERIAL IMPLANTS. Publication :THE UNIVERSITY OF TEXAS AT ARLINGTON May 2010 Link: SDF-1 prospec publication

Precautions

SDF 1a Human is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (P48061)