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Role of CXCR4-SDF1-HMGB1 pathway on the directional migration of cells and regeneration of affected organ

Nazmul Haque, Ismail M Fareez, Liew Fong Fong, Chanchal Mandal, Noor Hayaty Abu Kasim , Kranthi Raja Kacharaju, Pratiwi Soesilawati

Abstract

In the recent years, several studies have reported positive outcomes of cell-based therapies despite of insufficient engraftment of transplanted cells. These findings have created a huge interest on the regenerative potential of paracrine factors released from the transplanted stem or progenitor cells. Interestingly, this notion has also led scientists to question the role of proteins

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A novel **role** of CXCR4 and SDF-1 during **migration of** cloacal muscle precursors Article in Developmental Dynamics 239(6):1622-31 · June 2010 with 80 Reads How we measure 'reads'

Chemokine receptor CXCR4: Role in gastrointestinal cancer ...

https://www.sciencedirect.com/science/article/pii/S1040842813001820

The expression of CXCR4 on malignant epithelial **cells** and on **cells** from several haematopoietic malignancies implies that the CXCL12/CXCR4 **pathway** may influence the biology of cancer and play a pivotal **role** in directing the metastasis of CXCR4 + tumor **cells** to organs that express CXCL12 (e.g., lymph nodes, lungs, liver, or bones).

Cited by: 28 **Author:** Lucia Lombardi, Francesca Tavano, Fra...
Publish Year: 2013

Mesenchymal Stem Cells with Increased Stromal Cell-Derived ...

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4334471

Feb 01, 2015 · Similar studies have shown that **SDF1 recruits MSCs** to the periosteum of the injured bone and therefore promote endochondral bone repair. 28 The **CXCR4/SDF1 signaling pathway** has been reported to play a critical **role** in bone healing as it affects **cell migration** and differentiation to the defect site as well as affecting the numerous cellular processes involved in bone healing, such as chondrogenesis and osteogenesis, bone **remodeling**...

Cited by: 28 **Author:** Chih-Yuan Ho, Anita Sanghani, Jia Hua, ...
Publish Year: 2015

Sdf1/Cxcr4 signaling controls the dorsal migration of ...

https://www.researchgate.net/publication/5275923_Sdf1Cxcr4_signaling_controls_the...

The **directional migration** of endoderm **cells** during gastrulation is controlled by mesoderm

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SDF-1/CXCL12 induces directional cell migration and ...

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4422355

SDF-1/CXCL12 induces **directional cell migration** and spontaneous metastasis via a CXCR4/G ... such as tissue **regeneration** and stem **cell** maintenance, ... signaling **pathway** plays a major **role** in regulating **cell** growth and survival and is one of the most frequently deregulated biochemical routes in cancer .

Cited by: 31 **Author:** Patricia Dillenburg-Pilla, Vyomesh Patel...
Publish Year: 2015

Progenitor Cell Mobilization and Recruitment: SDF-1, CXCR4 ...

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3556394

A. SDF-1/CXCR4. CXCR4 is a G protein-coupled receptor composed of 352 amino acids with seven transmembrane helices 72–74 and is broadly expressed by both mononuclear **cells** and progenitor **cells** in the bone marrow. 72–78 The ligand for CXCR4, SDF-1, is a secreted or membrane-bound protein that is abundantly expressed by osteoblasts, endothelial **cells**, and a subset of reticular **cells** ...

Cited by: 57 **Author:** Min Cheng, Gangjian Qin
Publish Year: 2012

CXCR4-SDF-1 signaling is active in rhabdomyosarcoma cells ...

https://www.researchgate.net/publication/11151975_CXCR4-SDF-1_signaling_is_active_in_r...

Some of the adhesion and **directional migration** experiments were performed on **cells** ... not **affected** by the presence of SDF-1 in ... hematopoietic progenitor **cells**: **roles** of ...

CXC Chemokine Receptors - an overview | ScienceDirect Topics

https://www.sciencedirect.com/topics/immunology-and-microbiology/cxc-chemokine-receptors

Role of CXCR4-SDF1-HMGB1 pathway on the directional migration of ce

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SDF-1/CXCL12 induces directional cell migration and ...

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SDF-1/CXCL12 induces **directional cell migration** and spontaneous metastasis via a CXCR4/G ... such as tissue **regeneration** and stem **cell** maintenance, ... signaling **pathway** plays a major **role** in regulating **cell** growth and survival and is one of the most frequently deregulated biochemical routes in cancer .

Cited by: 34 **Author:** Patricia Dillenburg-Pilla, Vyomesh Patel, ...
Publish Year: 2015

A novel role of CXCR4 and SDF-1 during migration of ...

https://www.researchgate.net/publication/44631131...

One of the alpha-chemokines, CXCL12 or stromal **cell**-derived factor 1 (SDF-1), not only regulates **cell** growth and **migration** of hematopoietic stem **cells** but may also play a central **role** in brain ...

CXC Chemokine Receptors - an overview | ScienceDirect Topics

https://www.sciencedirect.com/topics/immunology...

The secretion of chemoattractants such as SDF-1α in or around injured tissue is a crucial process that creates an environment facilitating the homing of circulating progenitor **cells** for **organ regeneration** and tissue repair. 5 The SDF-1α/CXCR4 axis seems to be particularly important in progenitor **cell** chemotaxis, homing, engraftment, and retention in the damaged myocardium. 6 We 15 and others ...

Trafficking of Normal Stem Cells and Metastasis of Cancer ...

https://stemcellsjournals.onlinelibrary.wiley.com/doi/10.1634/stemcells.2004-0342

The stimulation **of cell** movement by SDF-1 (motility and **directional migration**) was inhibited in normal CD34 + hematopoietic **cells** as well as in several established **cell** lines after the PI-3K–AKT axis was blocked using Ly290042 or wortmanin and/or after inhibition of Gα i signaling by preincubating **cells** with pertussis toxin [28, 96, 139].

Cited by: 880 **Author:** Magda Kucia, Ryan Reca, Katarzyna Mie...
Publish Year: 2005

Directional Cell Migration Establishes the Axes of Planar ...