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Inflammatory niche: Mesenchymal stromal cell priming by soluble mediators

Jauković A *et al.* Improving MSC functionality by inflammatory priming

Aleksandra Jauković, Tamara Kukolj, Hristina Obradović, Ivana Okić-Đorđević, Slavko Mojsilovic, Diana Bugarski

Abstract

² Mesenchymal stromal/stem cells (MSCs) are adult stem cells of stromal origin that possess self-renewal capacity and the ability to differentiate into multiple mesodermal cell lineages. They have critical roles in tissue homeostasis and wound healing, as well

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requirements for *ex vivo* cell overexpansion prior to infusions, intrinsic differences between MSC and different sources and donors, variability of culturing protocols, and potency assays to evaluate MSC products have been described as limitations in the field.

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Publish Year: 2019

[A New Mesenchymal Stem Cell \(MSC ... - PubMed Central ...](#)

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Apr 26, 2010 · By contrast, TLR4-priming results in collagen deposition, expression of pro-inflammatory mediators, and a reversal of the MSC-established suppressive mechanisms of T-cell activation. Our study challenges current dogma that infused MSCs are only immunosuppressive, and instead suggests that they have more complex immune modulating activity.

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[Enhancing Mesenchymal Stromal Cell Immunomodulation ...](#)

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Aug 05, 2019 · 1. Background. Mesenchymal stromal cells (MSCs) are nonhematopoietic cells which possess self-renewal, proliferative, and clonogenic potential and have the ability to commit to different cell types including adipocytes, chondrocytes, and osteocytes depending on the environmental conditions [1–3]. They can be easily isolated from human tissues and have exceptional biological properties for ...

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Mesenchymal stromal cells (MSCs) modulate immune cells to ameliorate multiple inflammatory pathologies. Biophysical signals that regulate this process are poorly defined. By engineering hydrogels with tunable biophysical parameters relevant to bone marrow where MSCs naturally reside, we show that soft extracellular matrix maximizes the ability of MSCs to produce paracrine factors that have ...

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Mesenchymal stromal cells (MSCs) are key elements in the bone marrow (BM) niche where they **interact with hematopoietic stem progenitor cells (HSPCs) by offering physical support and secreting soluble factors**, which control HSPC maintenance and fate.

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Author: Stefania Crippa, Maria Ester Bernardo

Publish Year: 2018

[Inflammatory response of mesenchymal stromal cells after ...](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6516676)

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May 14, 2019 · Mesenchymal stromal cells (MSC) might be a therapeutic option for PT patients due to their **anti-inflammatory and regenerative potential**. We hypothesised that the inflammatory response of MSC is similar after exposure to selected trauma-relevant factors to sera from PT patients (PTS).

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Author: Elisa Maria Amann, Elisa Maria Amann, Ale...

Publish Year: 2019

[Mesenchymal stem or stromal cells: a review of clinical ...](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6364749)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6364749>

Both embryonic and nonembryonic stem **cells** have been explored as potential therapeutic strategies for a number of diseases. One group of adult stem **cells**, **mesenchymal stem or stromal cells** (MSCs), has generated great interest in the fields of regenerative medicine and immunotherapy due to their unique



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Cited by: 5 **Author:** Stefania Crippa, Maria Ester Bernardo

Publish Year: 2018

[Mesenchymal stem or stromal cells: a review of clinical ...](#)

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After activation, MSCs secrete soluble mediators—such as **nitric oxide (NO)**, **prostaglandin (PGE2)**, **indoleamine 2,3-dioxygenase (IDO)**, **IL-6**, **IL-10**, and **human leukocyte antigen (HLA)-G**. Production of these mediators regulates the proliferation and function of a variety of immune cells as well as the induction of regulatory T (TREG) cells either directly or indirectly through the generation of immature ...

Cited by: 351 **Author:** Ratti Ram Sharma, Kathryn Pollock, Allis...

Publish Year: 2014

[Inflammatory response of mesenchymal stromal cells after ...](#)

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[\[PDF\] Priming approaches to improve the efficacy of mesenchymal ...](#)

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Multipotent mesenchymal stromal cells (MSC) have been widely explored for **cell-based therapy of immune-mediated, inflammatory, and degenerative diseases, due to their immunosuppressive, immunomodulatory, and regenerative potentials**. Preclinical studies and clinical trials have demonstrated promising therapeutic results although these have

Cited by: 38 **Author:** N. C. Nadia de Cassia Noronha, Amanda...

Publish Year: 2019