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Effects of Immune Cells on Mesenchymal Stem Cells during Fracture Healing

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<https://www.ncbi.nlm.nih.gov/pubmed/26000315>

The precise spatial and temporal impact of immune cells and their cytokines on fracture healing remains obscure. Some cytokines are reported to be proosteogenic while others inhibit bone healing. Cell-based therapy utilizing mesenchymal stromal cells (MSCs) is an attractive option for ...

Cited by: 100Author: Tracy K. Kovach, Abhijit S. Dighe, Peter L....

Publish Year: 2015

The Role of the Immune Cells in Fracture Healing ...


<https://link.springer.com/article/10.1007/s11914-018-0423-2>

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## Effects of Aging on Fracture Healing - PubMed

<https://pubmed.ncbi.nlm.nih.gov/29143915>

Purpose of review: This review summarizes research on the physiological changes that occur with aging and the resulting **effects** on **fracture healing**. Recent findings: Aging affects the **inflammatory response during fracture healing** through senescence of the immune response and increased systemic pro-inflammatory status. Important cells of the **inflammatory** response, macrophages, T cells, mesenchymal stem cells, have demonstrated intrinsic age-related changes that could impact **fracture healing**.

Cited by: 72

Author: Dan Clark, Dan Clark, Mary Nakamura, Ted ...

Publish Year: 2017

## Fracture healing: mechanisms and interventions

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4464690>

In the initial inflammatory stage after injury, specific cell-mediated immune functions remove necrotic tissues, promote angiogenesis and initiate repair. 15–17 Interestingly, fracture leads to suppression of the immune system, 18 with a local increase in the number of induced T regulatory (iT REG) cells that suppress active adaptive immune responses within the fracture callus. 19 Studies have further shown that **mesenchymal stem cells** ...

Cited by: 866

Author: Thomas A. Einhorn, Louis C. Gerstenfeld

Publish Year: 2015

## People also ask

How are stem cells used in fracture healing?

**Name of Journal:** *World Journal of Stem Cells*

**Manuscript NO:** 65148

**Manuscript Type:** REVIEW

**Effects of immune cells on mesenchymal stem cells during fracture healing**

Ehnert S *et al.* Immune cells and mesenchymal stem cells during fracture healing

**Abstract**

In vertebrates, bone is considered as an osteoimmune system which encompasses functions of a locomotive organ, a mineral reservoir, a hormonal organ, a stem cell pool and a cradle for immune cells. This osteoimmune system is based on cooperatively acting bone and immune cells, cohabitating within the bone marrow. They are highly interdependent, a fact that is confounded by shared progenitors, mediators, and signaling pathways. Successful fracture healing requires the participation of all the precursors, immune and bone cells found in the osteoimmune system. Recent evidence

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### Interactions between MSCs and immune cells: implications ...

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The precise spatial and temporal impact of immune cells and their cytokines on fracture healing remains obscure. Some cytokines are reported to be proosteogenic while others inhibit bone healing. Cell-based therapy utilizing mesenchymal stromal cells (MSCs) is an attractive option for augmenting the fracture repair process.

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Author: Thomas A. Einhorn, Louis C. Gerstenfeld

Publish Year: 2015

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### Effects of Aging on Fracture Healing - PubMed

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