

Special Issue on
**Interaction between Stem Cells and the
Microenvironment for Musculoskeletal Repair**

CALL FOR PAPERS

Stem cell-based approaches for musculoskeletal repair using *in vitro* experiments or animal models have been extensively investigated and have demonstrated substantial tissue repair capacity; however, the number of stem cell-based therapies translated for clinical practice is limited and the clinical outcomes are mixed. Stem cells/progenitors have been shown to interact with the microenvironment during *in vitro* expansion, as well as the surrounding host microenvironment after transplantation using various delivery systems; these interactions play a crucial role in the regulation of cellular viability, migration, differentiation, secretion, and other biological potential. The *in vitro* and *in vivo* microenvironment is defined by the cells resident within the niche, the extracellular matrix, the cytokine, and chemokine milieu, as well as dynamic changes in nutrient availability. Importantly, these microenvironmental elements vary considerably across tissues (bone, cartilage, intervertebral disc, tendon, periosteum, etc.) and by the homeostasis and pathological state of the native tissue; understanding of how candidate stem/progenitor cells respond to these unique environments and whether/how they change the tissue microenvironment is limited to a few recent studies. A thorough understanding of stem cell-microenvironment communication would therefore accelerate the success of musculoskeletal repair.

The importance of the microenvironment to the application of stem cell-based tissue repair strategies is increasingly being recognized as a significant regulator of stem cell behavior and its repair effect within musculoskeletal tissue. This Special Issue aims to collect both original research articles and reviews that improve the understanding of the behavior of transplanted cells and their impact on the local tissue environment. This Special Issue welcomes original research articles and reviews on this area of research

Potential topics include but are not limited to the following:

- ▶ Interaction between stem cells and musculoskeletal extracellular matrix
- ▶ Interaction between stem cells and musculoskeletal cells
- ▶ Influence of local nutrients and biomechanical stimuli of musculoskeletal tissues on stem cell behavior
- ▶ Role of cytokines and chemokines in stem cell-based therapeutics for musculoskeletal repair

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/sci/iscm/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

Yongcan Huang, Peking University
Shenzhen Hospital, Shenzhen, China
y.c.huang@connect.hku.hk

Guest Editors

Zhen Li, AO Research Institute Davos,
Davos, Switzerland
zhen.li@aofoundation.org

Jun Li, Rush University, Chicago, USA
jun_v_li@rush.edu

Fengjuan Lv, South China University of
Technology, Guangzhou, China
lufj0@scut.edu.cn

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