

Special Issue on
Stem Cells for Cartilage Regeneration: A Roadmap to the Clinic

CALL FOR PAPERS

The clinical utility of stem and stromal cells has been proposed for the repair and regeneration of the articular surface although a broad clinical adoption of stem cell-based cartilage repair strategies has been limited. Recently, cells from different cell sources have been used in clinical trials with different approaches, while iPS cells started to show promises for cartilage regeneration in preclinical studies. The need for more translational animal models and reliable biomarkers arose from these important experiences. Last but not least, the optimal delivery system (e.g., hydrogel, scaffold) still needs to be identified.

The purpose of this special issue is to publish high-quality research articles as well as reviews that seek to address recent development on the use of stem cells for cartilage regeneration, as well as the relevant prospect on opportunities and challenges. In particular, we would like to cover the various aspects that are crucial for a successful clinical translation and identify the key hurdles that still remain to be overcome.

Potential topics include but are not limited to the following:

- ▶ Mesenchymal stromal/stem cells from various sources: *in vivo* cartilage regeneration, transcriptomic and epigenetic signatures, and clinical potential
- ▶ Translational clinical trial cartilage regeneration: innovative study designs and preliminary results
- ▶ Translational animal models for stem cell-based cartilage regeneration studies: small versus large animal models
- ▶ Application of pharmacologic strategies to promote stem cell-based cartilage repair: harnessing the potential of endogenous progenitor cells
- ▶ Autologous and allogeneic stem cells: how to promote tolerance and streamline the clinical adoption of allogeneic therapies for cartilage repair; cell labelling to track progenitor cells upon implantation
- ▶ Intervertebral disk regeneration: potential for cell-based therapies, need for dedicated delivery systems, the role of biomaterials, notochordal cells, and role of hypoxia
- ▶ Bioreactors for basic and clinical studies: requirements for clinical application of bioreactor technologies
- ▶ Noninvasive biomarkers discovery to monitor the cartilage repair activity of progenitor cells: the role of soluble biomarkers and of advanced imaging

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

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

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