

Special Issue on
Stem Cells in Cartilage Diseases and Repair 2018

CALL FOR PAPERS

Cartilage is an important connective tissue found in many areas of the body including the joints between bones (the hips, elbows, knees, and ankles), the rib cage, the ear, the nose, the bronchial tubes, meniscus, and the intervertebral discs. Cartilage disorders affect millions of people worldwide. It has been reported that about 80% of population at some time during their lifetime have low back pain caused by intervertebral disc degeneration. The cost of chronic low back pain exceeds the combined costs of stroke, respiratory infection, diabetes, coronary artery disease, and rheumatoid disease. There is no suitable and effective treatment for these cartilage diseases due to the lack of understanding cellular and molecular mechanisms that underlie these cartilage diseases. In particular, the stem cell effects in these cartilage diseases remain largely unknown. In fact, the restoration of normal structure and function of injured cartilages represents one of the most challenging areas in orthopedic medicine.

Cartilage remains one of the most difficult tissues to regenerate. Several approaches including tissue engineering and stem cell therapy have been developed in the past decade to repair damaged articular cartilage, intervertebral disc, and meniscus. However, the progress has been hindered by a lack of understanding the characterization of cartilage cells and pathogenic mechanisms of cartilage diseases.

At the cellular level, the challenges faced in cartilage diseases and regeneration include understanding the molecular biology of chondrocytes in cartilage injuries and repair, the regulation of stem cells during chondrogenic differentiation, chondrocyte dedifferentiation, chondrocyte hypertrophy, maintenance of the cartilage phenotype, and cartilage damages.

We invite investigators to contribute original research articles as well as review articles that will stimulate continuing efforts on stem cell research in cartilage diseases and repair/regeneration and increase the overall understanding of fundamental stem cell biology (regulatory mechanisms of self-renewal and differentiation).

Potential topics include but are not limited to the following:

- ▶ Characterization and differences among cartilage stem cells and various cartilage cells
- ▶ Chondrogenic differentiation and chondrocyte dedifferentiation of various stem cells including bone marrow mesenchymal stem cells (MSCs), embryonic stem cells (ESCs), adipose-derived stem cells (ASCs), and tendon stem cells (TSCs)
- ▶ Chondrocyte hypertrophy
- ▶ Cartilage injury (articular cartilage, intervertebral disc, meniscus, osteoarthritis, etc.) mechanism and treatment
- ▶ Regenerative medicine (tissue engineering, biomaterials, drug delivery, etc.) on cartilage
- ▶ Mechanical factors on stem cell differentiation in cartilage maintenance and repair
- ▶ Clinical applications of stem cell therapy in cartilage repair

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/sci/sccrg18/>.

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

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