



Hindawi

Stem Cells International

Special Issue on

Adipose Stem Cells: From Bench to Bedside

CALL FOR PAPERS

Surgical strategies for tissue loss replacement initially laid on the historical maxim “replace tissue with like-tissue”. In more recent years, several allogenic and alloplastic materials have been developed and used for tissue defects. However, their clinical use has been limited by further complications, for example, foreign-body reactions, rapid degradation, and risk of immunogenicity.

The development of regenerative medicine strategies requires an appropriate cell source and scaffold, “smart” biomaterials, and microenvironment to provide the cues and signals for cell growth and tissue formation. The biomaterials are able to direct and organize in situ the cellular events involved in the regenerative process. Stem cells, undifferentiated cells with the ability to self-renew and differentiate into different types of specialized cells, have a profound potential, in combination with biomaterials, for regenerative medicine and cell therapy. The proliferation and differentiation of stem cells can be regulated biochemically, as well as through the physical properties of microenvironments, such as the topography of the scaffolds, the “stiffness” and mechanical forces.

The multidimensional scaffolds are considered ideal candidates for regenerative medicine due to their ability to provide an excellent microenvironment that can direct cell fate. Understanding the interaction between stem cells and the extracellular substrate will be crucial in controlling the differentiation of stem cells for regenerative medicine applications. To this point, the identification of “mechanosensors” can not only elucidate the mechanisms of mechanotransduction and commitment but also uncover new perspectives to investigate.

The potential of stem cell therapies and regenerative medicine is both provocative and powerful, offering the distinct possibility of eventually repairing or replacing tissues damaged from disease, including certain cancers. We invite investigators to submit original research and review articles to contribute to the fast evolving research field of stem cell-biomaterial interactions and the development of clinically effective tissue engineering strategies. We are interested in the tissue engineering research work in terms of adipose stem cell biology, biomaterial properties, adipose stem cell-biomaterial applications, and molecular pathways influenced by the biomaterials, innovative biomaterials combined with spatial distribution of molecules and cells, and imaging methods to track the adipose stem cells.

Potential topics include, but are not limited to:

- ▶ Adipose tissue: histology, embryology, and physiology
- ▶ Differentiation of adipose stem cells
- ▶ Epigenetic regulation of adipose stem cell differentiation
- ▶ Immunomodulatory properties of adipose stem cells
- ▶ The interactions of adipose stem cells and biomaterials
- ▶ Adipose stem cells research for tissue engineering applications
- ▶ Biomaterial research and scaffold development for tissue engineering applications using adipose stem cells
- ▶ Applications for adipose stem cell-based strategies in pathological conditions
- ▶ Adipose stem cell transplantation and technologies that will maintain, improve, or restore the function of diseased organs
- ▶ GMP aspects in the field of adipose stem cells

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

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