



BioMed Research International

Special Issue on

Bioactive Scaffolds for Bone Tissue Engineering

CALL FOR PAPERS

In bone tissue engineering nanocomposite scaffolds play significant role in cell adhesion, proliferation, migration, and differentiation. They also play important role in synthesis of extracellular matrices and bone formation and regeneration. To fabricate bioactive scaffolds with required properties, several approaches and materials have been used ranging from biodegradable natural polysaccharides to synthetic polymers such as polylactides and polyglycolides. The nanocomposites having biomolecules, inorganic nanoparticles, and nanotubes was found to be potentially useful in fabrication of bioactive scaffolds for bone tissue engineering; hence, fabrication and characterization of bioactive scaffolds have important role to play in bone tissue engineering.

Amongst the biological molecules, the gelatin and peptides were found to be highly potential in controlling the bioactivity of scaffolds for bone tissue engineering. The application of nanoparticles such as hydroxyapatite (HA) and β -tricalcium phosphate (β -TCP) in biodegradable polymers has produced potentially bioactive scaffolds for bone formation in comparison to scaffolds without inorganic nanoparticles. The recent strategies in controlling the porosity and fiber orientations in bioactive scaffolds were found to be of great significance to develop efficient scaffolds for bone tissue engineering.

Currently, new materials and improved methods of designing of scaffolds are being used to enhance *in vitro* and *in vivo* performance of scaffolds for bone tissue engineering. There is a need to understand the role of microenvironment and structures of scaffolds to link their activity in bone tissue formation. These challenges of fabrication and characterization of nanocomposite scaffolds for bone tissue formation needs to be addressed in the light of material properties and design structures of the scaffolds. The field of bone tissue engineering using bioactive nanocomposites is of current research interests and it will keep on growing in next few years as a clinical approach to repair and bone formation in calvarial defects.

We invite investigators to contribute original research papers and review articles that will stimulate continuing efforts to understand the role of scaffolds in bone tissue engineering. The researches on bioactive scaffolds with better strategies and performance for bone tissue engineering would be encouraged. The innovative approaches with design parameters and modern methods of characterization of scaffolds would be considered to contribute for the existing knowledge and to stimulate further research in the area of bone tissue engineering. The fabrication of scaffolds with different materials and activity would also be the topics of current interests and to understand the role of natural and synthetic extracellular materials in bone tissue engineering and bone formation.

Potential topics include, but are not limited to:

- ▶ Novel approaches for design and developments of scaffolds
- ▶ Scaffolds from biodegradable and novel materials
- ▶ Single and mixed electrospinning of 3D scaffolds
- ▶ Strategies for scaffolds bone implantations
- ▶ Scaffolds with bone morphogenic proteins and other biomolecules

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/bmri/tissue.engineering/btst/>.

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