

PREFACE

JBBTE is one of the few journals in the biomaterials and tissue engineering realm that publishes both research papers and review papers, and this journal spans the diverse but closely interrelated fields of Biomimetics, Biomaterials, and Tissue Engineering. This volume (volume 14) comprises eight papers, all of which have a unique contribution to make to the interconnected fields of biomimetics, biomaterials, and tissue engineering.

1. Coan, Teli, Booth, Lively and Van Dyke (USA) present a **tissue engineering** study on mesenchymal stem cells, with the focus on demonstrating that adipose-derived stem cell (ADSC) osteogenesis is enhanced through interaction with extracellular matrices secreted by ADSC undergoing osteogenesis.
2. Poon, Zhang, Ruys, Hong, Catuogno and Boughton (Australia) present a **tissue engineering** research paper on respiratory tissue, developing a 3D construct designed to mimic respiratory conditions experienced by airway tissues during breathing, whilst ensuring compatibility with proven cell culture techniques.
3. Bianciardi, Buonsanti, Pontari and Tripodi (Italy) present a **biomimetic** research paper which uses a fractal approach to investigate the damage produced in tissues by freezing, with the focus on the human thoracic diaphragm muscle. They demonstrate that the lowest temperature produces the most damage.
4. Chen, Bai, Wang, Liu and Chen (China) report a **biomimetic and biomaterials** research paper on alginate microcapsules containing islets of macrophages, which have a function of *immuno-isolation*, co-incubating the microcapsules with macrophages and measuring the mRNA expression of cytokines by RT-PCR.
5. Mukherjee, Gangopadhyay, Das and Sarkar (India) report a **biomimetic and biomaterials** research paper on the Interaction of Yeast Cells with ZnO and TiO₂ Nanoparticles, with the objective of developing an in-vivo drug delivery technology.
6. Bao and Liu (China) present a **biomaterials** research paper on Wollastonite bioceramic coatings on titanium alloys substrates prepared by sol-gel, optimising heat treatment temperature to eliminate cracks in the coating

7. Mehdikhani and Mirhadi (Iran) present a **biomaterials** research paper on nanocrystalline hydroxyapatite/β-tricalcium phosphate composite powders, reporting on the sinterability of the nano-size powders, and the microstructure and mechanical strength of hydroxyapatite/β-tricalcium bioceramics produced from them.

8. Ehsani, Ruys, and Sorrell (Iran) present a **biomaterials** research paper on microwave sintering of zirconia fibre-reinforced hydroxyapatite, part two of a two-part series on microwave sintering of biomaterials (part one was in Volume 13).

All of these papers document cutting edge research in the interrelated disciplines of biomaterials and tissue engineering. The first two papers focus on tissue engineering, the third is a study of the biomimetics of tissue freezing, papers four and five take a biomimetic approach to biomaterials research, and the last three papers are pure biomaterials studies. Thus Volume 14 of the Journal of Biomimetics, Biomaterials, and Tissue Engineering presents a broad cross-section of research papers bridging the three inter-related disciplines of Biomimetics, Biomaterials, and Tissue Engineering.

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June 2012