

# Table of Contents

## Preface

## Chapter 1: Synthesis Technologies and Assessment of Osteoconductivity, Bio- and Cytocompatibility

<b>Opening New Avenues for Bioceramics: Oscillatory Flow Reactors and Upcoming Technologies in Skin-Tissue Engineering</b> A. Veiga, F. Castro, F. Rocha, B. Bernardes, M.M. Duarte and A.L. Oliveira	3
<b>Calcium Phosphate Nanoparticles as Carriers of Therapeutic Peptides</b> F. Mancini, L.D. Esposti, A. Adamiano, D. Catalucci, S. Appleton, A. Vitali, F. Bugli, M. Sanguinetti and M. Iafisco	13
<b>Type I Collagen-Apatite Fibrillar Nanocomposites: Mineralization, Crosslinking and Anti-Inflammatory Cocrystal Impregnation for Bone Tissue Engineering</b> I. Páramo-Castillejo, R. Fernández-Penas, I. Romero-Castillo, A. Domínguez-Martín, E. López-Ruiz, J.F. Fernández-Sánchez, D. Choquesillo-Lazarte, J.A. Marchal and J. Gómez-Morales	19
<b>Calcium Carbonate/Hydroxyapatite Microparticles and Osteoblast Responses</b> L. Bergara-Muguruza, H.E. Abdel Razik, P. Chen, M. Ashida, H. Takao, P. Vallitu and M. Nakamura	25
<b>Osteoblast-Mediated Resorption of Porous Bioactive SCPC Granules Enhances Bone Regeneration in Human Extraction Sockets</b> H.E. Abdel Razik, M. Nakamura, L. Bergara-Muguruza, U. Sarwar, M. Hassan, R. Horowitz and A. El-Ghannam	31
<b><i>In Vivo</i> Evaluation of Calcium-Phosphate Ceramics with Highly-Interconnected Pores Using Porcine Tibia Defect Model</b> Y. Shigemitsu, H. Nagashima, H. Matsunari and M. Aizawa	37
<b>Investigation of Microwave Sintering of B-Type Carbonated Hydroxyapatite Bioceramics</b> C. Petit, A. Le Tiec, L. Pancrazi and N. Douard	43
<b>New Approach to Identify the Physiological State of Bone Cells at the Surface of Hydroxyapatite Bioceramics</b> A. Abélanet, E. Champion and A. Magnaudeix	55
<b>Apatite-Graphene and Apatite-Graphene Oxide Nanocomposites: Hybrid Materials with Tailored Biological and Luminescent Properties</b> F.J. Acebedo Martínez, A. Voltés-Martínez, E.L. Ruíz, D. Choquesillo-Lazarte, J.F. Fernández-Sánchez, J.A. Marchal and J. Gómez-Morales	61

## Chapter 2: 3D Technologies in Scaffolds Production and Dental Restoration

<b>Processing by Laser Stereolithography and <i>In Vitro</i> Biological Evaluation of Hydroxyapatite Scaffolds Mimicking Human Trabecular Bone Architecture</b> P. Danty, A. Magnaudeix, E. Renaudie, F. Leborgne, V. Pateloup, V. Valle, E. Champion and P. Pascual-Mathieu	69
<b>Structural and Mechanical Characterization of 3D Printed Hydroxyapatite Scaffolds Designed for Biomedical Applications</b> I. Touaiher, M. Saadaoui, P. Reynaud, H. Reveron and J. Chevalier	75
<b>Selective Laser Melting-Sintering Technology: From Dental Co-Cr Alloys to Dental Ceramic Materials</b> K. Dimitriadis and S. Agathopoulos	81