

1. Record Nr.	UNINA9910812331903321
Titolo	Biomaterials for bone regenerative medicine // edited by Nandyala Sooraj Hussain, Jose Domingos da Silva Santos
Pubbl/distr/stampa	Stafa-Zuerich : , : Trans Tech, , [2010] ©2010
ISBN	3-03813-442-2
Descrizione fisica	1 online resource (206 p.)
Collana	Materials science foundations, , 1422-3597 ; ; volume 62
Disciplina	617.4710592
Soggetti	Bone substitutes Bone regeneration
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Biomaterials for Bone, Regenerative Medicine; Dedicated; Contents; Forward; Preface; Contributors; Table of Contents; CHAPTER 1 Skeletal Regenerative Nanobiomaterials; 1. Introduction; 2. Basics of Bone Biology; 3. Current Scenarios of Bone Grafting; 4. Concept of Biomimetics in Skeletal Regeneration; 5. Mechanism of Biological Mineralization; 6. Biomimetic Mineralization - Rationale and Benefits; 7. Processing of Biomineralized Nanobiomaterial Systems; 8. Biomineralization of Electrospun Nanofibers - A New Approach; Conclusions and Future Challenges; Glossary; References CHAPTER 2 Silica-Based Materials as Precursors of Nanoapatites 1. Bioactive glasses; 2. Sol-Gel Glasses: Components of Mixed Materials; 3. Organic-Inorganic Hybrids to Expand the Clinical Application of Bioactive Glasses; 4. Star Gels Bioactive Materials; 5. Silica Based Ordered Mesoporous Materials; 6. Synthesis of Templated Glasses; 7. Considerations on Materials Eligible for Bone Regeneration Duties; References; CHAPTER 3 Phytochemicals for Bone Regeneration; 1. Introduction; 2. Material and Methods; 3. Results; 4. Discussion; 5. Conclusion; References CHAPTER 4 Designed Biomaterial Scaffolds for Bone Regeneration 1. Introduction; 2. Scaffold Design; 3. Effective Mechanical and Permeability Properties of Designed Scaffolds; 4. Bone Regeneration on Designed Scaffolds; 5. Discussion; References; CHAPTER 5 Engineered

Ca-Si Based Ceramics for Skeletal tissue Reconstruction; 1. Introduction; 2. Ca-Si Based Bioactive Glass and Glass-Ceramics; 3. Ca-Si Based Binary Oxide System Bioactive Ceramics; 4. Ca-Si-Mg Bioactive Ceramics; 5. Future Trends. References; CHAPTER 6 Calcium Phosphate-Based Materials for Bone Regenerative Medicine; 1. Introduction
2. Bioactive Glasses and Glass-Ceramics
3. Silicon-Substituted Apatites; 4. Calcium Phosphate-Based Materials; 5. Bone-like® Medical Applications; References; CHAPTER 7 Cell Adhesion and Proliferation over Zinc-Glass-reinforced Hydroxyapatite Composites (Zn-GRHA); 1. Introduction; 2. Materials and Methods; 3. Physicochemical and Morphological Analysis of the Zn-GRHA Composites; 4. In Vitro Biocompatibility of the Zn-GRHA Composites; 5. Conclusions. References

Sommario/riassunto

The aim of "Biomaterials for Bone Regenerative Medicine" is to review extensively the latest developments in Biomaterials and their application to bone regeneration in vivo. Indeed, research on biomaterials and their novel applications is essential because of the health issues related to the aging population. A wide range of worldwide investigations is being undertaken by eminent scholars in order to develop further innovative materials for next-generation applications. In future, it is expected that a tissue engineering approach, associating novel biomaterials with stem cells, will be available.
