

1. Record Nr.	UNINA9910828921403321
Titolo	Integrated biomaterials for biomedical technology // edited by Murugan Ramalingam ... [et al.]
Pubbl/distr/stampa	Hoboken, N.J., : Wiley Salem, Mass., : Scrivener Pub., c2012
ISBN	1-283-64534-3 1-118-48254-9 1-118-48251-4 1-118-48252-2
Edizione	[1st ed.]
Descrizione fisica	1 online resource (438 p.)
Collana	Biomaterials science, engineering, and technology
Altri autori (Persone)	RamalingamMurugan
Disciplina	610.28
Soggetti	Biomedical materials Nanomedicine Biotechnology
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 and index.
Nota di contenuto	Integrated Biomaterials for Biomedical Technology; Contents; Preface; List of Contributors; 1. 1D~3D Nano-engineered Biomaterials for Biomedical Applications; 1.1 Introduction; 1.2 3D Nanomaterials Towards Biomedical Applications; 1.2.1 Synthesis of NPs; 1.2.2 Synthesis in Water; 1.2.3 Synthesis in Organic Medium; 1.2.4 Other Methods; 1.3 Structural and Functional Modification; 1.3.1 Surface Modification; 1.3.2 Internal Modification; 1.4 Properties of Nanoparticles for Biomedical Application; 1.4.1 Toxicity; 1.4.2 Optical Properties; 1.5 Applications of NPs; 1.5.1 Biomedical Imaging 1.5.2 Analytical Tools1.5.3 Therapeutic Biomedicine; 1.5.4 Drug Delivery; 1.6 2D Nanomaterials Towards Biomedical Applications; 1.6.1 Materials of Nanofiber; 1.6.2 Fabrication Strategies; 1.6.3 Biomedical Applications of 2D Nanomaterials; 1.7 1D Nanomaterial Towards Biomedical Applications; 1.7.1 Fabrication Strategies; 1.7.2 Micromechanical Characterization; 1.7.3 Applications Toward Biomedical Field; 1.8 Conclusion; References; 2. Porous Biomaterials; 2.1 Introduction; 2.2 Porosity and Pore Architecture of Biomaterial

Scaffolds; 2.3 Methods to Measure Porosity and Pore Size
2.4 Porosity Generation Techniques
2.4.1 Solvent Casting/particle Leaching; 2.4.2 Phase Separation; 2.4.3 Freeze Drying; 2.4.4 Electrospinning; 2.4.5 Gas-based Techniques; 2.5 Summary; References;
3. Bioactive and Biocompatible Polymeric Composites Based on Amorphous Calcium Phosphate; 3.1 Introduction; 3.2 Experimental Approach; 3.3 Results and Discussion; 3.4 Concluding Remarks/Future Directions; Acknowledgements; References; Appendix 1. List of Acronyms used Throughout the Proposal;
4. Calcium Phosphates and Nanocrystalline Apatites for Medical Applications; 4.1 Introduction
4.2 Chemistry of Calcium Phosphates
4.3 Nanocrystalline Calcium Phosphates; 4.4 Properties of Calcium Orthophosphates; 4.4.1 Mechanical Properties; 4.4.2 Electrical Properties; 4.4.3 Porosity; 4.4.4 Biological Properties; 4.5 Biomedical Applications of Calcium Phosphates; 4.5.1 Bone Cements; 4.5.2 Carrier and Delivery Systems; 4.5.3 Coatings; 4.5.4 Scaffolds; 4.6 Conclusion; References;
5. SiO₂ Particles with Functional Nanocrystals: Design and Fabrication for Biomedical Applications; 5.1 Introduction; 5.1.1 Nanocrystals; 5.1.2 NCs Encapsulated in SiO₂ Particles
5.1.3 Bioapplications of SiO₂ Particles with Colloidal NCs
5.1.4 Scope; 5.2 Fabrication Methods of SiO₂ Particles with NCs; 5.2.1 SiO₂ Particles with Luminescent NCs; 5.2.2 SiO₂ Particles with Magnetic NCs; 5.2.3 SiO₂ Particles with Noble Metallic NCs; 5.2.4 SiO₂ Particles with Multifunctional NCs; 5.3 Main Research Results for SiO₂ Particles with NCs; 5.3.1 SiO₂ Particles with Luminescent QDs; 5.3.2 SiO₂ Particles with Magnetic NCs; 5.3.3 SiO₂ Particles with Noble Metallic NCs; 5.3.4 SiO₂ Particles with Multifunctional NCs; 5.4 Multifunctional SiO₂ Particles for Biomedical Applications
5.4.1 Surface Modification and Conjugation of Luminescent SiO₂ Particles

Sommario/riassunto

This cutting edge book provides all the important aspects dealing with the basic science involved in materials in biomedical technology, especially structure and properties, techniques and technological innovations in material processing and characterizations, as well as the applications. The volume consists of 12 chapters written by acknowledged experts of the biomaterials field and covers a wide range of topics and applications.
