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Nota di contenuto	PART 1: INTRODUCTION -- Chapter 1: Overviews of Biomimetic Medical Materials -- PART II: NANOMATERIALS AS AN EMERGING BIOMIMETIC MATERIALS -- Chapter 2: Protein Cage Nanoparticles as Delivery Nanoplatforms -- Chapter 3: Cell Membrane Coated Nanoparticles: An Emerging Biomimetic Nanoplatform for Targeted Bioimaging and Therapy -- Chapter 4: Graphene-Based Nanomaterials and Their Applications in Biosensors -- Chapter 5: Graphene-Functionalized Biomimetic Scaffolds for Tissue Regeneration -- PART III: BIOMIMETIC MATERIALS IN TISSUE ENGINEERING -- Chapter 6: Influence of Biomimetic Materials on Cell Migration -- Chapter 7: Biomimetic Scaffolds for Bone Tissue Engineering -- Chapter 8: Recent Progress in Vascular Tissue-Engineered Blood Vessels -- PART IV: BIOMIMETIC MEDICAL MATERIALS AND STEM CELLS -- Chapter 9: Microenvironmental Regulation of Stem Cell Behavior Through Biochemical and Biophysical Stimulation -- Chapter 10: Decellularized Tissue Matrix for Stem Cell and Tissue Engineering -- Chapter 11: Biomaterials for Stem Cell Therapy for Cardiac Disease -- PART V: IMMUNORESPONSES OF BIOMIMETIC MEDICAL MATERIALS -- Chapter 12: Immunomodulation of Biomaterials by Controlling Macrophage Polarization -- Chapter 13: Artificial Methods for T Cell Activation: Critical Tools in T Cell Biology and T Cell Immunitherapy -- Chapter 14:

Regulatory T Cell-Mediated Tissue Repair -- PART VI: FUNCTIONAL BIOMATERIALS -- Chapter 15: ROS-Responsive Biomaterial Design for Medical Applications -- Chapter 16: Fibrin-Based Biomaterial Applications in Tissue Engineering and Regenerative Medicine -- Chapter 17: Fabrication of Electrochemical-Based Bioelectronic Device and Biosensor Composed of Biomaterial-Nanomaterial Hybrid -- Chapter 18: Biomimetic Self-Assembling Peptide Hydrogels for Tissue Engineering Applications -- Chapter 19: Bioartificial Esophagus: Where Are We Now? -- PART VII: 3-D BIOPRINTING BIOMATERIALS -- Chapter 20: ECM Based Bioink for Tissue Mimetic 3D Bioprinting -- Chapter 21: 3D Bioprinting for Artificial Pancreas Organ -- PART VIII: INTELLECTULA PROPERTIES IN APPLICATIONS OF BIOMIMETIC MEDICAL MATERIALS -- Chapter 22: Current Status of Development and Intellectual Properties of Biomimetic Medical Materials.

Sommario/riassunto

This volume outlines the current status in the field of biomimetic medical materials and illustrates research into their applications in tissue engineering. The book is divided into six parts, focusing on nano biomaterials, stem cells, tissue engineering, 3D printing, immune responses and intellectual property. Each chapter has its own introduction and outlines current research trends in a variety of applications of biomimetic medical materials. The biomimetic medical materials that are covered include functional hydrogels, nanoparticles for drug delivery and medicine, the 3D bioprinting of biomaterials, sensor materials, stem cell interactions with biomaterials, immune responses to biomaterials, biodegradable hard scaffolds for tissue engineering, as well as other important topics, like intellectual property. Each chapter is written by a team of experts. This volume attempts to introduce the biomimetic properties of biomedical materials within the context of our current understanding of the nanotechnology of nanoparticles and fibres and the macroscopic aspects of 3D bioprinting.