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Nota di contenuto	I.The Fate of Stem Cell by Biomaterials -- 1.Biomaterials for stem cell homing in in situ tissue regeneration -- 2.A novel strategy for simple and robust expansion of human-induced pluripotent stem cells using botulinum hemagglutinin -- 3.Growth and differentiation of the stem cells of dental apical papilla on polycaprolactone-based scaffolds -- 4. Impact of three-dimentional culture systems on hepatocyte differentiation and beyond, Thamil Selvee Ramasamy -- II.Controlling of Signal Pathway of Stem Cell by Biomaterials -- 5.Modulation of inflammatory reaction in the development of biomaterials for osteogenesis -- 6.Novel Physiologically mimicking biomatrix platform for advancing regeneration and re-creating organ capillaries -- 7.Silk fibroin participates wound healing processes via NF-kB signaling -- 8. The role of natural-based polymers in advanced therapies for autoimmune diseases -- III.Functional Biomaterials for Regenerative Medicine -- 9.Applications of biomimetic hydrogel-based materials for musculoskeletal tissue engineering -- 10.Injectable biomaterials for regenerative medicine -- 11.Advanced injectable alternatives for osteoarthritis -- 12.Engineering of hydrogel materials for biomedical

applications -- 13.Injectable nanocomposite hydrogel for biomedical applications -- 14.Advances in waterborne polyurethane-based biomaterials for biomedical applications -- 15.Medical applications of collagen and hyaluronan in regenerative medicine -- IV.Inorganic Biomaterials for Regenerative Medicine -- 16.Calcium phosphate biomaterials for clinical application in dentistry -- 17.Novel biodegradable metals for regenerative medicine -- 18.Stem cell and advanced nano bioceramic interactions -- 19.Fabrication of nano-hydroxyapatite by hydrothermal treatment for biomedical applications -- 20.Use of TiO₂ in the bone regeneration -- V.Smart Natural Biomaterials for Regenerative Medicine -- 21.Natural gum-based scaffolds for tissue engineering and regenerative medicine -- 22.Silk for bone regeneration -- 23.Collagen type I: A versatile biomaterial -- 24.Naturally derived and artificially engineered cellular matrices for regenerative medicine -- 25.Natural ECM biomaterial for tissue engineering applications -- 26.Mussel-inspired biomaterials for cell and tissue engineering -- 27.Tissue engineered skin grafts based on natural/synthetic polymers -- 28.Demineralized dentin matrix as a carrier of recombinant human bone morphogenetic proteins -- 29. Prospects of natural polymeric scaffolds in nerve tissue-regeneration -- 30.Chitosan-based dressing materials for problematic wound management.

Sommario/riassunto

This book explores in depth a wide range of new biomaterials that hold great promise for applications in regenerative medicine. The opening two sections are devoted to biomaterials designed to direct stem cell fate and regulate signaling pathways. Diverse novel functional biomaterials, including injectable nanocomposite hydrogels, electrosprayed nanoparticles, and waterborne polyurethane-based materials, are then discussed. The fourth section focuses on inorganic biomaterials, such as nanobioceramics, hydroxyapatite, and titanium dioxide. Finally, up-to-date information is provided on a wide range of smart natural biomaterials, ranging from silk fibroin-based scaffolds and collagen type I to chitosan, mussel-inspired biomaterials, and natural polymeric scaffolds. This is one of two books to be based on contributions from leading experts that were delivered at the 2018 Asia University Symposium on Biomedical Engineering in Seoul, Korea – the companion book examines in depth the latest enabling technologies for regenerative medicine.
