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Nota di contenuto	1 Novel technologies in design and fabrication of the 'living' bioprosthetic heart valves; natural scaffolds and synthetic polymers, Rosaria Santoro and Maurizio Pesce -- 2 Recent Progress in Strategies for Adenovirus Mediated Therapeutic Cell Targeting, Ottmar Herchenröder, Julia Reetz, and Brigitte M. Pützer -- 3 Regenerative chimerism bioengineered through stem cell reprogramming, Timothy J. Nelson , Almudena Martinez-Fernandez , Satsuki Yamada , and Andre Terzic -- 4 Biodegradable materials, Michael Schroeter, Britt Wildemann, and Andreas Lendlein -- 5 Biomaterials-Enabled Regenerative Medicine in Corneal Applications, Naresh Polisetti, Geeta K. Vemuganti, May Griffith -- 6 Functionalized Nanomaterials, Jie Zhou, Wenzhong Li, and Changyou Gao -- 7 Biointerface technology, Joachim Rychly -- 8 Controlled Release Technologies for RNAi Strategies in Regenerative Medicine, Jan Hoyer, Michael C. Hacker, Michaela Schulz Siegmund -- 9 Imaging technology, Cajetan Lang and Sebastian Lehner -- Index<.

Sommario/riassunto

Regenerative medicine is the main field of groundbreaking medical development and therapy using knowledge from developmental and stem cell biology as well as advanced molecular and cellular techniques. This collection of volumes, Regenerative Medicine: From Protocol to Patient, aims to explain the scientific knowledge and emerging technology as well as the clinical application in different organ systems and diseases. International leading experts from all over the world describe the latest scientific and clinical knowledge of the field of regenerative medicine. The process of translating science of laboratory protocols into therapies is explained in sections on regulatory, ethical and industrial issues. The collection is organized into five volumes: (1) Biology of Tissue Regeneration, (2) Stem Cell Science and Technology, (3) Tissue Engineering, Biomaterials and Nanotechnology, (4) Regenerative Therapies I, and (5) Regenerative Therapies II. The textbook gives the student, the researcher, the health care professional, the physician and the patient a complete survey on the current scientific basis, therapeutical protocols, clinical translation and practiced therapies in regenerative medicine. Volume 3: Tissue engineering, Biomaterials and Nanotechnology focuses the development of technologies, which enable an efficient transfer of therapeutic genes and drugs exclusively to target cells and potential bioactive materials for clinical use. Principles of tissue engineering, vector technology, multifunctionalized nanoparticles, biodegradable materials, controlled release, and biointerface technology are described with regard to the development of new clinical cell technology. Imaging and targeting technologies as well as biological aspects of tissue and organ engineering are depicted.