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Nota di contenuto	1 History of regenerative medicine, Raymund E Horch, Laurentiu M Popescu, and Elias Polykandriotis -- 2 Regulatory frameworks for cell and tissue based therapies, Gudrun Tiedemann -- 3 Ethics and Law in Regenerative Medicine, Nikolaus Knoepffler, Tade Matthias Spranger, Nikolai Münch, Martin O'Malley -- 4 Guidelines for preclinical development, Edward Spack -- 5 Central Nervous System: Stem Cell-based Cell- and Gene-Therapy, Seung U. Kim -- 6 Central Nervous System: Trauma, Kewal K. Jain -- 7 Peripheral nervous system, Júlia Teixeira Oliveira -- 8 Regenerative Therapies for the Ocular Surface, Geeta K Vemuganti, Virender S Sangwan, Indumathi Mariappan, Praveen Joseph, Dorairajan Balasubramanian -- 9 Regenerative Therapies for Retinopathy, Ramesh Periasamy and Rajashekhar Gangaraju -- 10 Lacrimal Gland Regeneration: Progress and Promise, Geeta K Vemuganti and Shubha Tiwari -- 11 The development of a stem cell therapy for deafness, Nopporn Jongkamonwiwat, Leila Abbas, Darrell Barrott, Sarah L. Boddy, A. Sameer Mallick and Marcelo N. Rivolta -- 12 Oral and Maxillo-facial, Kristina Arvidson, Michele Cottler-Fox, Sølve Hellem, Kamal Mustafa -- 13 Trachea, Silvia Baiguera, Paolo Macchiarini -- 14

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 on 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. This 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 4 first gives a survey on the historical background of science and development of regenerative therapies. Ethical, preclinical and regulatory issues for the introduction of new regenerative therapies are depicted as the current background for clinical translation. The clinical chapters describe the state of development for medical science, technology application, and clinical translation for the nervous system, head, and respiratory system.