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Nota di contenuto	1 Characterization and classification of stem cells, Ute Bissels, Yvonne Diener, Dominik Eckardt, Andreas Bosio -- 2 Human embryonic stem cells, Terri Gaskell, Mikael C.O. Englund and Johan Hyllner -- 3 Induced Pluripotent Stem Cells in Regenerative Medicine, Luna Simona Pane, Ilaria My, Alessandra Moretti -- 4 Spermatogonial stem cells, Ilya Chuykin, Michael Stauske, Kaomei Guan -- 5 Hematopoietic stem cells, Jonathan Frampton -- 6 Cardiovascular stem cells, Christoph Brenner, Robert David and Wolfgang-Michael Franz -- 7 Neural stem cells, Yoko Arai, Wieland B. Huttner, and Federico Calegari -- 8 Liver stem cells, Tohru Itoh, Hinako M Takase, and Atsushi Miyajima -- 9 Intestinal stem cells in homeostasis and cancer, Sandhya Singh, M. Sasikala , G.V. Rao , D.Nageshwar Reddy -- 10 Cancer Stem Cells: Perspectives beyond immunophenotypes and markers, Sharmila A. Bapat -- 11 Mesenchymal Stromal Cells (MSC), Patrick Wuchter, Wolfgang Wagner, and Anthony D. Ho -- 12 Musculoskeletal stem cells, Juliane D. Glaeser, Biagio Saitta., Dmitriy Sheyn, and Hyun W. Bae -- 13 Pancreas-derived multipotent precursor, Fang-Xu Jiang & Grant Morahan -- 14 Adipose stromal/stem cells, Jie Li, Elizabeth C. Martin, Jeffrey M. Gimble -- 15

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 2 contains sixteen chapters addressing advanced knowledge on "Stem Cell Science and Technology" addressing basic classification technology, cell biology of stemness state and regulatory molecular pathways. Mechanisms and technology of cell programming are explained, as well as the pathology of cancer cells and dedifferentiation signalling. Pluripotent, multipotent germline and tissue specific human stem cells are classified and qualified according to their respective biological function or tissue regeneration. Leading stem cell scientists from all over the world explain advanced technology, latest knowledge, and clinical implications of human stem cell science in a unique, comprehensive and detailed outline.
