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Sommario/riassunto	Stem cells are central to the development and homeostasis of metazoan tissues and play roles at multiple times within a diversity of organs during the lifetime of an animal. A key goal of regenerative medicine is the in vivo repair of organs damaged by disease or injury. In order to facilitate this goal we need to understand how stem cells are generated, what factors maintain them in their respective tissues and how their differentiation is regulated. In this volume, leading researchers discuss the nature of stem cells and pluripotency and how this state can be experimentally induced. Stem cell maintenance, proliferation and differentiation is under tight regulation as excess stem cell proliferation could facilitate tumour formation and conversely loss of stem cells or failure of differentiation could disrupt tissue homeostasis or repair. Hence, stem cells are regulated by multiple layers of molecular control and this volume discusses transcriptional, translational, epigenetic, cell signalling and microRNA modalities that affect stem cell behaviour. Many of the underlying key principles of stem cell biology were discovered by genetic analysis of invertebrate systems and chapters in this volume describe regulation of the germline in C. elegans and in the digestive system, central nervous system and germline of Drosophila. The molecular processes that regulate regenerative organ systems from all three of the vertebrate

germ layers are described with emphasis on the male germline, nervous system, epidermis, intestine, haematopoietic system and derivatives of the mesoderm. Several chapters also focus on molecular families that have been implicated in controlling a range of stem cell types including the JAK-STAT, Wnt and Notch signalling pathways; Myc, Myb and nuclear receptor transcriptional regulators; the Musashi family of RNA-binding proteins; microRNAs and epigenetic regulators. This volume will provide access to the current state of research in these rapidly evolving areas of stem cell biology to the student, educator or researcher.