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Nota di contenuto	Chapter 1. Introduction to in vivo cell Reprogramming Technology -- Chapter 2. In vivo Reprogramming for Regenerating Insulin-Secreting Cells -- Chapter 3. Direct Reprogramming to Beta Cells -- Chapter 4. In vivo Lineage Reprogramming of Fibroblasts to Cardiomyocytes for Heart Regeneration -- Chapter 5: In vivo cell Reprogramming for Long-term Pluripotency -- Chapter 6: In vivo Transient Reprogramming Towards Pluripotency for Tissue Repair and Regeneration -- Chapter 7. Challenges and Future Perspectives for in vivo Reprogramming Technology.
Sommario/riassunto	There have been significant improvements in the development of cell based therapies; however, current treatment strategies still suffer from some problems: the need for long in vitro culture conditions, inefficient

delivery of cells by scaffolds and low incorporation and grafting efficiencies. Therefore, in vivo reprogramming has emerged as a novel treatment technology. In the process of in vivo reprogramming, cells switch to another cell type within the living organism. Leaders in the field discuss how in vivo reprogramming can be used for tissue repair and regeneration in different organs, including pancreas, liver and heart. Furthermore, recent studies on in vivo cell reprogramming towards pluripotency are also reviewed. Current challenges of these preclinical studies are discussed and hypothesis and suggestions are given in order to improve the current strategies to achieve translation into clinic. .