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Nota di contenuto	Chapter 1: Scope of Tissue Engineering -- 1. Functions of Scaffold -- 2. Absorbable Biomaterials -- 3. Pore Creation in Biomaterials -- 4. Special Scaffolds -- 5. Surface Modifications -- 6. Cell Expansion and Differentiation -- -- 7. Growth Factors -- 8. Cell Sources <P> -- -- Chapter 2: Animal and Human Trials of Engineered -- Tissues -- 1. Plastic Surgical System -- 2. Musculoskeletal System -- 3. Cardiovascular and Thoracic System -- 4. Nervous System -- 5. Maxillofacial System -- 6. Gastrointestinal System -- -- 7. Urogenital System -- -- 8. Others <P> -- Chapter 3: Basic Technologies Developed for Tissue Engineering -- 1. Biomaterials -- -- 2. Fabrication of Porous Scaffolds -- 3. Novel Scaffolds -- 4. Surface Modification of Biomaterials and Cell Interactions -- 5. Growth Factors and Carriers -- 6. Cell Culture -- 7. Examples of Cell Culture<P> -- Chapter 4: Challenges in Tissue Engineering -- 1. Problems in Tissue Engineering -- 2. Sites for Neotissue Creation -- 3. Autologous or Allogeneic Cells -- 4. Cell Types -- 5. Risks at Cell Culture -- 6. Scaffolds for Large Animals and Human Trials -- 7. Importance of Neovascularization -- -- 8. Carriers for Growth Factors -- 9. Primary Roles of Each Player in the Tissue Engineering Arena
Sommario/riassunto	Tissue engineering is an emerging interdisciplinary field, occupying a

major position in the regenerative medicine that aims at restoring lost or damaged tissues and organs with use of cells. Regenerative medicine includes cellular therapy and tissue engineering. In general, the former treats patients by cell infusion alone, while tissue engineering needs biomaterials and growth factors in addition to cells. Biomaterials function in tissue engineering as the scaffold or template for cells to proliferate, differentiate, and produce matrices. This book focuses on the fundamentals (biomaterials, scaffolds, cell cultures, bioreactors, animal models etc.), recent animal and human trials, and future prospects regarding tissue engineering. <P> Almost twenty years have passed since the advent of the tissue engineering, which uses cells, scaffolds, and growth factors for regeneration of neotissues. The number of investigations on tissue engineering is still increasing tremendously. Nevertheless, it seems likely that the number of reports describing clinical trials of tissue engineering will remain very limited. Even the studies that apply tissue engineering research to large animals have not been performed yet on a large scale. The major objective of this book is to address this question from a science and technology point of view, and to describe the principles of basic technologies that have currently been developed by numerous research groups. * Helps reader understand the key issues required for promotion of clinical trials in tissue engineering * Covers in full the issues related to tissue engineering * Looking at current technologies in the field
