CONTENTS IN BRIEF

Contributors	xix	Part V. Biomaterials in Tissue	
Foreword	xxix	Engineering	263
Preface	xxxi	 Micro-Scale Patterning of Cells and Their Environment 	265
Preface to the Second Edition	xxxiii	20. Cell Interactions with Polymers	279
Preface to the First Edition	XXXV	21. Matrix Effects	297
		22. Polymer Scaffold Fabrication	309
Introduction to Tissue Engineering	1	23. Biodegradable Polymers	323
1. The History and Scope of Tissue Engineering	3	24. Micro- and Nanofabricated Scaffolds	341
2. The Challenge of Imitating Nature	.7	25. Three-Dimensional Scaffolds	359
3. Moving into the Clinic	15		
4. Future Perspectives	33	Part VI. Transplantation of Engineered Cells and Tissues	375
Part I. The Basis of Growth and Differentiation	51	 Tissue Engineering and Transplantation in the Fetus 	377
Molecular Biology of the Cell	53	27. Immunomodulation	389
Organization of Cells into Higher-Ordered	33	28. Immunoisolation	399
Structures	67	 Engineering Challenges in Immunobarrier Device Development 	405
7. Dynamics of Cell-ECM Interactions	81	and the second second	400
8. Matrix Molecules and Their Ligands	101	Part VII. Stem Cells	419
Morphogenesis and Tissue Engineering	117	30. Embryonic Stem Cells	421
 Gene Expression, Cell Determination, and Differentiation 	129	31. Adult Epithelial Tissue Stem Cells	431
		 Embryonic Stem Cells as a Cell Source for Tissue Engineering 	445
Part II. In Vitro Control of Tissue		33. Postnatal Stem Cells	459
Development	135		
11. Engineering Functional Tissues	137	Part VIII. Gene Therapy	469
 Principles of Tissue Culture and Bioreactor Design 	155	34. Gene Therapy	471
13. Regulation of Cell Behavior by	130	35. Gene Delivery into Cells and Tissues	493
Extracellular Proteins	185	Part IX. Breast	517
14. Growth Factors	193	36. Breast Reconstruction	519
 Mechanochemical Control of Cell Fate Switching 	207		
		Part X. Cardiovascular System	535
Part III. In Vivo Synthesis of Tissues		37. Progenitor Cells and Cardiac Homeostasis	537
and Organs	217	38. Cardiac-Tissue Engineering	551
16. In Vivo Synthesis of Tissues and Organs	219	39. Blood Vessels	569
		40. Heart Valves	585
Part IV. Models for Tissue Engineering	239	Part XI. Endocrinology and Metabolism	603
17. Models as Precursors for Prosthetic Devices	241	41. Generation of Islets from Stem Cells	605
18. Quantitative Aspects	251	42. Bioartificial Pancreas	619