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Titolo	Vascular Engineering : New Prospects of Vascular Medicine and Biology with a Multidiscipline Approach / / edited by Kazuo Tanishita, Kimiko Yamamoto
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ISBN	4-431-54801-7
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Descrizione fisica	1 online resource (400 p.)
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Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Chapter 1 Introduction -- Chapter 2 Fundamentals of Vascular Bio-fluid and Solid Mechanics -- Chapter 3 Fundamentals of Physiology and Biology of Vascular System -- Chapter 4 Hemodynamics in Physio- and Pathological Vessels -- Chapter 5 Cyclic Stretch-Induced Reorganization of Stress Fibers in Endothelial Cells -- Chapter 6 Mechanical Characterization of Vascular Endothelial Cells Exposed to Fluid Shear Stress -- Chapter 7 Tensile Properties of Smooth Muscle Cells, Elastin, and Collagen Fibers -- Chapter 8 Mechanobiology of Endothelial Cells Related to the Formation of Arterial Disease -- Chapter9 Mechanotransduction of Shear Stress by the Endothelium -- Chapter 10 Mechanobiology of Endothelial Cells Related to the Pathogenesis of Arterial Disease -- Chapter 11 Vascular Engineering of Blood Coagulation -- Chapter 12 Vascular Engine ering to Make Blood-Compatible Surface -- Chapter 13 Vascular Engineering of Circulatory Assist Devices -- Chapter 14 Innovations in Measuring Cellular Mechanics -- Chapter 15 Innovation of Vascular Engineering by

	Mechano-medicine -- Chapter 16 Integrated Vascular Engineering: Vascularization of Reconstructed Tissue -- Chapter 17 Novel Technology to Assay the Multicellular Network: On-Chip Cellomics Technology.-.
Sommario/riassunto	This book describes the fundamental biology and mechanics of the vasculature and examines how this knowledge has underpinned the development of new clinical modalities, including endovascular treatment and vascularization of reconstructed tissue for regenerative medicine. Vascular engineering is a multidisciplinary field integrating vascular biology, hemodynamics, biomechanics, tissue engineering, and medicine. Each chapter offers insights into the dynamics of the circulatory system and explains how the impact of related disease conditions — atherosclerosis, hypertension, myocardial ischemia, and cerebral infarction — has generated a focus on developing expertise to both maintain and treat the vascular system. As a comprehensive book in this expanding area, Vascular Engineering serves as a valuable resource for clinicians as well as academics and professionals working in biophysics, biomedical engineering, and nano and microrheology. Graduate students in these subject areas will also find this volume insightful.