

CONTENTS

PREFACE	v
I. CELL MECHANICS	1
Heterogeneous expression of the motor protein prestin of cochlear outer hair cells	3
<i>H. Wada, K. Iida, S. Kumano, M. Murakoshi, K. Tsumoto K. Ikeda, I. Kumagai and T. Kobayashi</i>	
Effects of actin filaments on anisotropy and stiffness of aortic smooth muscle cells	16
<i>T. Matsumoto and K. Nagayama</i>	
Micro-vessel network formation of endothelial cells with in vitro three dimensional model	26
<i>K. Tanishita, A. Ueda, M. Koga, R. Sudo, S. Kudo and M. Ikeda</i>	
Time-dependent mechanical behaviors of articular cartilage and chondrocytes under constant total compressive deformation	37
<i>T. Murakami, N. Sakai, Y. Sawae, Y. Kurohara, I. Ishikawa and M. Okamoto</i>	
II. CELL RESPONSE TO MECHANICAL STIMULATION	49
Threshold fiber strain that induces reorganization of cytoskeletal actin structure in osteoblastic cells	51
<i>T. Adachi and K. Sato</i>	
Morphology of endothelial cells in response to hydrostatic pressure	62
<i>M. Sato</i>	
Mechanosensing in intestinal villi: ATP signaling in subepithelial fibroblasts network	72
<i>K. Furuya, S. Furuya and M. Sokabe</i>	

III. TISSUE ENGINEERING	85
Microelements for cartilage tissue engineering <i>K. Tsuchiya, K. S. Furukawa and T. Ushida</i>	87
Interrelationship between water filtration velocity and the thickness of pseudointima formed at the wall of artificial vascular grafts implanted in the dog common carotid artery <i>T. Karino, M. Kaichi and T. Ishizaka</i>	96
Strengthening of fibrous tissues under mechanical stimuli <i>K. Takakuda</i>	108
IV. COMPUTATIONAL BIOMECHANICS	119
Assessment of cortical bone microstructure using monochromatic synchrotron radiation micro-CT <i>T. Matsumoto, M. Yoshino and M. Tanaka</i>	121
Study on particle presentations of blood cells and the plasma in microvascular blood flow <i>T. Yamaguchi, S. Wada, K. Tsubota, H. Kamada and Y. Kitagawa</i>	132
Brief reviews of mechanical models of skeletal muscle and formulation of a muscle model taking into account microstructure and damage <i>E. Tanaka and D. Ito</i>	141
Numerical simulation of the effects of actin binding and cellular deformation on the orientation of actin stress fibers under cyclic stretch <i>H. Yamada, H. Ando and D. Morita</i>	149
SUBJECT INDEX	161