

Contents

Foreword by Max J. Lab	vii
Foreword by Jürgen Hescheler	xi
Editorial	xiii
Contributors	xix
Part I Mechanosensitive Channels	
1 Experimental Methods of Studying Mechanosensitive Channels and Possible Errors in Data Interpretation	3
Andre Kamkin, Irina Kiseleva, and Ilya Lozinsky	
2 The Role of Lipid Bilayer Mechanics in Mechanosensation	37
Tristan Ursell, Jané Kondev, Dan Reeves, Paul A. Wiggins, and Rob Phillips	
3 Mechanosensitive Channels Gated by Membrane Tension	71
Paul Blount, Yuezhou Li, Paul C. Moe, and Irene Iscla	
4 Computational Studies of the Bacterial Mechanosensitive Channels	103
Ben Corry and Boris Martinac	
5 Mechanosensory Transduction in the Nematode <i>Caenorhabditis elegans</i>	117
Nikos Kourtis and Nektarios Tavernarakis	
6 Mechanosensitive Ion Channels in Odontoblasts	147
Henry Magloire, Bruno Allard, Marie-Lise Couble, Jean-Christophe Maurin, and Françoise Bleicher	
7 Potassium Ion Channels in Articular Chondrocytes	157
Ali Mobasheri, Caroline Dart, and Richard Barrett-Jolley	

8 Osmotransduction Through Volume-Sensitive Cl^- Channels	179
Naomi Niisato and Yoshinori Marunaka	
9 Mechanosensitive Channel TRPV4	203
Makoto Suzuki	
Part II Mechanosensitive Signalling Cascades	
10 Mechanosensitive Purinergic Calcium Signalling in Articular Chondrocytes	235
Belinda Pingguan-Murphy and Martin M. Knight	
11 Signal Transduction Pathways Involved in Mechanotransduction in Osteoblastic and Mesenchymal Stem Cells	253
Astrid Liedert, Lutz Claes, and Anita Ignatius	
12 Caveolae: Co-ordinating Centres for Mechanotransduction in the Heart?	267
Sarah Calaghan	
13 Multimodal Activation and Regulation of Neuronal Mechanosensitive Cation Channels	291
Mario Pellegrino, Cristina Barsanti, and Monica Pellegrini	
14 Regulation of Intracellular Signal Transduction Pathways by Mechanosensitive Ion Channels	303
Aladin M. Boriek and Ashok Kumar	
Part III Cell Mechanobiology	
15 The Effects of Mechanical Stimulation on Vertebrate Hearts	331
Holly A. Shiels and Ed White	
16 Mechanobiology of Fibroblasts	351
Bhavani P. Thampatty and James H-C. Wang	
Index	379