

CONTENTS

Contributors

vii

1. Cell and Molecular Biology of Invadopodia	1
Giusi Caldieri, Inmaculada Ayala, Francesca Attanasio, and Roberto Buccione	
1. Introduction	2
2. Biogenesis, Molecular Components, and Activity	3
3. Open Questions and Concluding Remarks	23
References	25
2. Viral Channel-Forming Proteins	35
Wolfgang B. Fischer and Jens Krüger	
1. Introduction	36
2. Channel-Forming Proteins	37
3. Detecting a Channel-Forming Protein	44
4. Functional and Structural Characterization	47
5. Channel-Forming Proteins in Antiviral Therapy	51
6. Concluding Remarks	53
References	54
3. Notch Signaling in Chondrogenesis	65
Camilla Karlsson and Anders Lindahl	
1. Introduction	66
2. Helix–Loop–Helix Proteins	66
3. Notch Genes	69
4. Notch1 as a Marker for Progenitor Cells in Adult Cartilage	72
5. Function of Notch Signaling During Chondrogenesis	74
6. Notch Signaling in Osteoarthritis	79
7. Concluding Remarks	82
References	83

4. The Controversial Role of Mast Cells in Tumor Growth	89
Domenico Ribatti and Enrico Crivellato	
1. Introduction	90
2. Biological Functions of Mast Cells	91
3. Mast Cell Development, Anatomical Distribution, and Phenotype	98
4. Mast Cell-Derived Secretory Products	102
5. Mast Cells in Experimental Carcinogenesis	106
6. Mast Cells and Tumor Growth in Humans: Pro and Contra	107
7. Mast Cells and Tumor Angiogenesis and Lymphangiogenesis	111
8. Concluding Remarks	118
References	119
5. Limbal Stem Cells: Application in Ocular Biomedicine	133
Geeta K. Vemuganti, Anees Fatima, Soundarya Lakshmi Madhira, Surendra Basti, and Virender S. Sangwan	
1. Introduction	134
2. Ocular Surface and Limbal Stem Cells	135
3. Conventional Treatment Modalities of Limbal Stem Cell Deficiency	140
4. Concept of Cultivated Limbal Stem Cell Transplantation	144
5. Review of Literature on Clinical Trials	167
6. Concluding Remarks	171
References	172
6. Cell and Molecular Biology of the Novel Protein Tyrosine-Phosphatase-Interacting Protein 51	183
Albrecht Stenzinger, Dietmar Schreiner, Philipp Koch, Hans-Werner Hofer, and Monika Wimmer	
1. Introduction	184
2. Molecular Biology of PTPIP51	184
3. Signaling Partners of PTPIP51	193
4. Expression Profile of PTPIP51	208
5. Conclusions and Further Perspective	226
References	227
<i>Index</i>	247