

CONTENTS

Contributors

ix

1. Microtubule Organization and Microtubule-Associated Proteins in Plant Cells	1
Takahiro Hamada	
1. Introduction	2
2. Overview of MT Arrays and Functions in Plant Cells	2
3. MT-Associated Proteins in <i>Arabidopsis</i>	14
4. Conclusions and Future Directions	33
Acknowledgment	34
References	34
2. β-Catenin in Pluripotency: Adhering to Self-Renewal or Wnting to Differentiate?	53
Galina S. Sineva and Valery A. Pospelov	
1. Introduction	54
2. β -Catenin in Canonical Wnt Signaling and Adhesion	55
3. β -Catenin Activities in Regulation of Pluripotency	59
4. Conclusion	71
Acknowledgments	72
References	72
3. Recent Advances in Molecular and Cell Biology of Testicular Germ-Cell Tumors	79
Paolo Chieffi	
1. Introduction	80
2. Epidemiology and Risk Factors	80
3. Histopathology	81
4. Prognostic and Diagnostic Markers	84
5. Therapy	90
6. MicroRNAs in TGCTs	95
7. Conclusions and Perspectives	96
References	96

4. New Insight into the Origin of IgG-Bearing Cells in the Bursa of Fabricius	101
Shigeo Ekino and Kayoko Sonoda	
1. Introduction	102
2. Structural Organization and Functions of the Bursa of Fabricius	103
3. IgG-Bearing Cells in the Bursa of Fabricius	109
4. Concluding Remarks	129
Acknowledgments	132
References	133
5. Biological Mechanisms Determining the Success of RNA Interference in Insects	139
Niels Wynant, Dulce Santos, and Jozef Vanden Broeck	
1. Introduction	140
2. RNAi Pathway and Small dsRNAs	141
3. Biological Functions of smRNAs in Insects	142
4. Dcr and Ago Proteins	144
5. Systemic RNAi	147
6. Species and Tissue Dependency of RNAi in Insects	150
7. RNAi as a Tool to Study and Control Insect Populations	151
8. Regulation of sysRNAi in Insects: Lessons Learned from Locusts	154
9. Conclusions and Future Perspectives	157
References	159
6. Canonical and Noncanonical Roles of Par-1/MARK Kinases in Cell Migration	169
Jocelyn A. McDonald	
1. Introduction	170
2. Canonical Roles of Par-1/MARK in Cell Migration I: MTs	171
3. Canonical Roles of Par-1/MARK in Cell Migration II: Cell Polarity	179
4. Noncanonical Roles of Par-1/MARK in Cell Migration	186
5. Concluding Remarks	191
Acknowledgments	192
References	192
7. Insights into the Mechanism for Dictating Polarity in Migrating T-Cells	201
Verena Niggli	
1. Introduction	202
2. G-Protein-Coupled Receptors	206

3. Adhesion Receptors and Associated Proteins	208
4. Membrane Recycling/Organelles	213
5. Signaling Molecules	215
6. Cytoskeleton	232
7. Polarity Proteins	247
8. Membrane Microdomains (Rafts)	249
9. Self-Organizing Aspects of T-Cell Polarity	254
10. Concluding Remarks	256
Acknowledgments	258
References	258

Index

271