Advances in CANCER RESEARCH

Volume 74

Edited by

George F. Vande Woude

ABL—Basic Research Program National Cancer Institute Frederick Cancer Research and Development Center Frederick, Maryland

George Klein

Microbiology and Tumor Biology Center Karolinska Institutet Stockholm, Sweden



ACADEMIC PRESS

San Diego London Boston New York Sydney Tokyo Toronto

Contents

Contributors to Volume 74 vii

× Key Effectors of Signal Transduction and G1 Progression

Martine F. Roussel

- I. Introduction 1
- II. The G1 Phase of the Mammalian Cell Cycle 3
- III. Signal Transduction and G1 Progression 5
- IV. The RAS/ERK Pathway and the Cell Cycle 5
- V. RAS, D-Type Cyclins, and RB Connections 9
- VI. Cycling with MYC 11
- VII. Interplay between MYC and Cyclin D1 13
- VIII. Signaling and Cell Cycle Roles of the SRC Family of Kinases 14
- IX. Concluding Remarks 15
 - References 16

xp53 in Tumor Progression: Life, Death, and Everything

Michael R. A. Mowat

- I. Introduction 25
- II. Biochemical Activities of p53 26
- III. p53 and Cell Cycle Control 27
- IV. p53 and Apoptosis 29
- V. p53 and Tumor Progression 37

References 42

Signal Transduction through MAP Kinase Cascades

Timothy S. Lewis, Paul S. Shapiro, and Natalie G. Ahn

- I. The MAP Kinase (MAPK) Module 49
- II. Mammalian MAPK Pathways 50

III.	Regulation	of MAPK	Pathways b	ov Protein	Phosphatases	75

- IV. Cellular Substrates of MAP Kinases 81
- V. Responses to MAPK Pathways: Growth and Differentiation 91
- VI. Yeast MAPK Pathways 100
- VII. Intracellular Targeting and Spatial Regulation of MAPK Pathway Components 111
- VIII. Future Directions 113
 References 114

*FHIT in Human Cancer

Gabriella Sozzi, Kay Huebner, and Carlo M. Croce

- I. Introduction 141
- II. Cloning and Structural Features of the FHIT Gene 144
- III. The Fhit Protein and Its Biochemical Properties 146
- IV. FHIT Abnormalities in Human Cancer 147
- V. Conclusions and Perspectives 158 References 159

Phosphoinositide 4- and 5-Kinases and the Cellular Roles of Phosphatidylinositol 4,5-Bisphosphate

- J. Justin Hsuan, Shane Minogue, and Maria dos Santos
 - I. Introduction 167
 - II. Receptor-Linked Phosphoinositide Metabolism 174
 - III. Phosphoinositides and the Cytoskeleton 187
 - IV. Vesicle Biogenesis and Trafficking 195
 - V. Roles in Cancer, Summary, and Prospects 206 References 208

Index 217