

# CONTENTS

Contributors v  
 Preface ix  
 Acknowledgments x

## Section I: BASIC PRINCIPLES OF CANCER TREATMENT 1

<b>1</b>	<b>Clinical Strategies for Cancer Treatment: The Role of Drugs</b>	<b>3</b>
	<i>Bruce A. Chabner and Adam C. Palmer</i>	
<b>2</b>	<b>Target Identification and Drug Discovery</b>	<b>17</b>
	<i>Bruce A. Chabner</i>	
<b>3</b>	<b>Clinical Drug Development and Approval</b>	<b>29</b>
	<i>Gideon M. Blumenthal</i>	
<b>4</b>	<b>Principles of Pharmacokinetics</b>	<b>37</b>
	<i>Jeffrey G. Supko and Jerry M. Collins</i>	
<b>5</b>	<b>Pharmacogenomics and the Role of Genomics in Cancer Therapeutics</b>	<b>49</b>
	<i>Steven M. Offer and Robert B. Diasio</i>	
<b>6</b>	<b>Delivering Anticancer Drugs to Brain Tumors</b>	<b>69</b>
	<i>K. Ina Ly, Maciej M. Mrugala, Jeffrey G. Supko, and Tracy T. Batchelor</i>	
<b>7</b>	<b>Antifolates</b>	<b>92</b>
	<i>Bruce A. Chabner and Carmen J. Allegra</i>	
<b>8</b>	<b>5-Fluoropyrimidines</b>	<b>114</b>
	<i>David P. Ryan, Jean Grem, and Bruce A. Chabner</i>	
<b>9</b>	<b>Cytidine Analogues</b>	<b>136</b>
	<i>Bruce A. Chabner, Christopher S. Nabel, and Andrew M. Brunner</i>	
<b>10</b>	<b>Purine Analogs</b>	<b>156</b>
	<i>Kenneth R. Hande and Bruce A. Chabner</i>	
<b>11</b>	<b>Antimitotic Drugs</b>	<b>175</b>
	<i>Cindy H. Chau, William D. Figg, and Bruce A. Chabner</i>	
<b>12</b>	<b>Alkylating and Methylating Agents</b>	<b>200</b>
	<i>Stanton L. Gerson, Lachelle D. Weeks, and Bruce A. Chabner</i>	

<b>13</b>	<b>Platinum Analogues</b>	<b>234</b>
	<i>Lauren Amable, Eddie Reed, and Bruce A. Chabner</i>	
<b>14</b>	<b>Topoisomerase Inhibitors</b>	<b>249</b>
	<i>Anish Thomas and Yves Pommier</i>	
<b>15</b>	<b>Bleomycin, Yondelis, MMC</b>	<b>270</b>
	<i>Bruce A. Chabner</i>	
<b>16</b>	<b>Epigenetic Agents in Oncology: HDAC Inhibitors, IDH Inhibitors, and EZH2 Inhibitors</b>	<b>285</b>
	<i>Ira Suroli and Susan E. Bates</i>	
<b>17</b>	<b>Differentiating Agents</b>	<b>302</b>
	<i>Bruce A. Chabner</i>	
<b>18</b>	<b>Asparaginase</b>	<b>308</b>
	<i>Bruce A. Chabner</i>	

## Section II: TARGETED AGENTS 315

<b>19</b>	<b>Proteasome Inhibitors</b>	<b>317</b>
	<i>Andrew J. Yee, E. Bridget Kim, and Noopur S. Raju</i>	
<b>20</b>	<b>Thalidomide and its Analogs in the Treatment of Hematologic Malignancies, Including Multiple Myeloma, and Solid Tumors</b>	<b>334</b>
	<i>Jacob Laubach, Constantine S. Mitsiades, and Bruce A. Chabner</i>	
<b>21</b>	<b>Targeted Therapy in Non-Small Cell Lung Cancer</b>	<b>352</b>
	<i>Harper G. Hubbeling, Jessica J. Lin, Justin F. Gainor, Ibiayi Dagogo-Jack, and Alice T. Shaw</i>	
<b>22</b>	<b>MAP Kinase Pathway</b>	<b>373</b>
	<i>Douglas B. Johnson and Keith T. Flaherty</i>	
<b>23</b>	<b>CDK Inhibitors</b>	<b>384</b>
	<i>Geoffrey I. Shapiro</i>	
<b>24</b>	<b>Drugs Targeting the ABL and JAK Kinases</b>	<b>409</b>
	<i>James A. Kennedy, Samantha O. Luk, and Gabriela Hobbs</i>	
<b>25</b>	<b>The PI3K/AKT/mTOR Signaling System</b>	<b>431</b>
	<i>Bruce A. Chabner</i>	

**26 Inhibitors of Tumor Angiogenesis 440**

*Ami N. Shah and William J. Gradishar*

**Section III: HORMONE ANTAGONISTS 467**

**27 Endocrine Therapy of Breast Cancer 469**

*Laura M. Spring and Beverly Moy*

**28 Hormone Therapy for Prostate Cancer 492**

*Richard J. Lee*

**Section IV: IMMUNE-BASED THERAPIES 507**

**29 Monoclonal Antibodies 509**

*Ramya Ramaswami and Dan L. Longo*

**30 Cytokine Therapy for Cancer 530**

*David C. Yao, David F. McDermott, and Henry B. Koon*

**31 Adoptive Cellular Therapy 561**

*Marco Ruella, Antonella Rotolo, Katherine D. Cummins, and Carl H. June*

**Section V: SUPPORTIVE CARE 585**

**32 Antiemetics 587**

*Rudolph M. Navari*

**33 Hematopoietic Growth Factors 602**

*Gary H. Lyman and Nicole M. Kuderer*

**34 Cancer and Coagulopathy 613**

*Rachel P.G. Rosovsky*

*Index 631*