CONTENTS

PREFACE ix
CONTRIBUTORS xi

PART I  FUNDAMENTALS AND CONCEPTS 1

   Sophie C. Desbiens and David H. Farb

2. Target Selection in Drug Discovery 25
   Charles F. Albright

3. New Drug Applications 35
   John S. McInnes

4. From Concept to the Clinics: Development of Cancer Therapeutics 47
   Balveen Kaur, Gregory B. Lesinski, and Abhik Ray Chaudhary

5. Development of Countermeasures for Bioterrorism in the United States 73
   Gregory H. Levine and Jeffrey L. Handwerker

6. Development and Application of Conformation-Selective Integrin Antibodies 91
   Nathan S. Astrof, Dan Peer, and Motomu Shimaoka

7. Pain Management Market Overview 113
   Anita Holdcroft

8. Antiviral Market Overview 127
   Anita Arora, Natalia Mendoza, and Stephen K. Tyring

PART II  METHODS AND TECHNIQUES IN DRUG DISCOVERY AND DEVELOPMENT 145

9. High-Throughput Screening for Small-Molecule Drug Discovery 147
   C. Parker and J.-H. Zhang
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>Mass Spectrometry</td>
<td>Robert D. English and Anthony M. Haag</td>
</tr>
<tr>
<td>11.</td>
<td>Molecular Screening for Therapeutic Agents</td>
<td>R. Damoiseaux</td>
</tr>
<tr>
<td>14.</td>
<td>Antibodies for Human Diseases</td>
<td>Guo-Liang Yu and Jian Ni</td>
</tr>
<tr>
<td>15.</td>
<td>Combinatorial Compounds and Drug Discovery</td>
<td>James C. Bigelow</td>
</tr>
<tr>
<td>17.</td>
<td>RNAi-Mediated Therapeutics</td>
<td>Nuria Morral and Scott R. Witting</td>
</tr>
<tr>
<td>18.</td>
<td>Crystallography</td>
<td>Carl H. Schwalbe</td>
</tr>
<tr>
<td>19.</td>
<td>PEGylation</td>
<td>Sanju Dhawan, Deepak N. Kapoor, Rishi Kapil, Manoj Kumar, and Ankur Bansal</td>
</tr>
<tr>
<td>20.</td>
<td>Gold Standard Animal Models</td>
<td>Carol Castaneda and Michael S. LaPointe</td>
</tr>
<tr>
<td>21.</td>
<td>Discovery of Vaccine Adjuvants</td>
<td>Fiona A. Sharp and Ed C. Lavelle</td>
</tr>
<tr>
<td>22.</td>
<td>Oral Delivery of Macromolecules for the Development of Therapeutic Agents</td>
<td>Hye J. Lee and Chanmi Choi</td>
</tr>
<tr>
<td>23.</td>
<td>Aerosol Drug Delivery to the Lungs</td>
<td>Andrew R. Martin and Warren H. Finlay</td>
</tr>
<tr>
<td>24.</td>
<td>Resistance to Antiplatelet Therapy</td>
<td>Paul A. Gurbel and Udaya S. Tantry</td>
</tr>
<tr>
<td>25.</td>
<td>Antibiotic Development</td>
<td>Robert L. Bettiker and Jason C. Gallagher</td>
</tr>
<tr>
<td></td>
<td><strong>PART III THERAPEUTICS TOPICS</strong></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>Drotrecogin Alfa Activated (Recombinant Human Activated Protein C, Xigris)</td>
<td>Byungse Suh and Rafik Samuel</td>
</tr>
</tbody>
</table>
28. Anti-Inflammatory Therapeutics 655
   Marion M. Chan and Dunne Fong

29. Anti-Inflammatory/Analgesics: An In-depth Look at p38 MAP Kinases 673
   Kelly L. Brown

30. Cardiovascular Disease: In-Depth Look 707
   Nicholas B. Norgard and Mazen S. Abu-Fadel

31. Ezetimibe and Cholesterol Absorption 723
   Stefan Oswald and Werner Siegmund

32. Cardiology—In-Depth Look: Kinases as Therapeutic Targets in the Heart 743
   Karin Mauer and J. Emilio Exaire

33. Statins in the Reduction of Cardiovascular Events 773
   Rajesh Sachdeva, Bradley Hughes, and Jawahar L. Mehta

34. Cardiology—In-Depth Look: Advances in Antiplatelet Therapy 785
   Karin Mauer and Jorge F. Saucedo

35. Gastrointestinal Disorders: A Focus on Acid-Suppressive Agents 813
   Brian Hemstreet

36. Pharmacology of Vasopressin and the Renin–Angiotensin–Aldosterone System 825
   Elizabeth J. Brant, Albert Q. Lam, and Julian L. Seifter

37. New Drugs and Nutraceuticals in the Treatment of Osteoarthritis 847
   Y. Henrotin and J.-Y. Reginster

38. Development of Anticytokine Agents for Rheumatoid Arthritis 881
   Jonathan Sherlock, Christopher D. Buckley, and Karim Raza

39. Overview of CNS Neuropharmaceuticals 897
   Tauser Roxana-Georgiana and Antohe Dan-Stefan

40. Thinking Outside the Box in Alzheimer Disease Treatment 929
   Rudy J. Castellani, Michael W. Marlati, Akihiko Nunomura, Paula I. Moreira, Hyo-Song Lee, Gemma Casadesus, Xiongwei Zhu, George Perry, and Mark A. Smith

41. Neurtrophic Factors as Novel Therapeutic Targets 943
   Stephen D. Skaper

42. Oncology 963
   Arkadiusz Z. Dudek and Steven F. Powell

43. Tyrosine Kinase Inhibitors in Chronic Myeloid Leukemia 999
   Muhammad Mansoor Alam and Moshe Talpaz

44. Aromatase Inhibitors for Breast Cancer 1011
   Akm Hossain and Jame Abraham

   Gregory T. Wurz and Michael W. DeGregorio
CONTENTS

46. In-Depth Look: Anti-TNF-α Therapies 1045
Satadal Chatterjee and Shobhan Gaddameedhi

47. Development of Therapeutic Agents: The Maternal—Fetal Perspective 1093
C. Gedeon, F. Garcia Bournissen, and G. Koren

48. History of Antipsychotic Drug Development 1111
Shankar S. Gollapudi and Rajan Radhakrishnan

49. Radiopharmaceuticals and Medical Imaging: Development of Radioimmunoconjugates for Radioimmunoimaging and Radioimmunotherapy of Malignant Diseases 1137
Gang Niu and Xiaoyuan Chen

50. Therapeutic Drug Development for Kidney Diseases 1159
Mitchell H. Rosner, Joshua King, and Peter Monteleone

51. Targeting Chemokines and Angiogenesis in Rheumatoid Arthritis 1185
Zoltán Szekanecz and Alisa E. Koch

52. Development of Therapeutic Agents: Methods and Approaches in the Development of Vaccines against Protozoan Parasites 1207
Catherine Ivory and Kris Chadee

53. Toxicology 1221
John H. Duffus

54. Development of Phosphodiesterase 4 Inhibitors for Allergic and Nonallergic Inflammatory Diseases of the Airways 1233
Mark A. Giembycz

INDEX 1251