Contents

Contributors vii

1. Introduction to Therapeutic Drug Monitoring 1
   AMITAVA DASGUPTA

2. Effects of Pre-analytical Variables in Therapeutic Drug Monitoring 31
   VALERIE BUSH

3. Analytical Techniques used in Therapeutic Drug Monitoring 49
   MICHAEL C. MILONE

4. Clinical Utility of Free Drug Monitoring 75
   FLORIN MARCEL MUSTEATA

5. Current Practice of Therapeutic Drug Monitoring 103
   FRANCK SAINT-MARCOUX

6. An Introduction to Personalized Medicine 121
   ANNJANETTE STONE AND JOSHUA BORNHORST

7. Application of Ultra-High Throughput Sequencing and Microarray Technologies in Pharmacogenomics Testing 143
   GARY HARDIMAN

8. Pharmacogenomics and Warfarin Therapy 161
   JENNIFER MARTIN AND ANDREW SOMOGYI

9. Applications of Pharmacokinetic and Pharmacodynamic Principles to Optimize Drug Dosage Selection 175
   JILL BUTTERFIELD, THOMAS P. LODISE JR AND MANJUNATH P. PAI

10. Guidelines for the Monitoring of Vancomycin, Aminoglycosides and Certain Antibiotics 197
    RONALD W. MCLAWHON

11. Challenges in Therapeutic Drug Monitoring of Digoxin and Other Anti-Arrhythmic Drugs 219
    AMITAVA DASGUPTA

12. Therapeutic Drug Monitoring of Classical and Newer Anticonvulsants 243
    MATTHEW LUKE

13. Challenges in Therapeutic Drug Monitoring of Classical Tricyclic and Newer Antidepressants 269
    UTTAM GARG AND ANGELA FERGUSON

14. Therapeutic Drug Monitoring of Selected Anticancer Drugs 291
    MICHAEL C. MILONE

15. Immunosuppressive Drug Monitoring 323
    KATHLEEN A. KELLY AND ANTHONY W. BUTCH
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Biomarkers: The Link between Therapeutic Drug Monitoring and Pharmacodynamics of Immunosuppressants</td>
<td>349</td>
</tr>
<tr>
<td></td>
<td>Michael Oellerich, Gunnar Brandhorst, Maria Shipkova and Eberhard Wieland</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Therapeutic Drug Monitoring of Antiretroviral Drugs in the Management of Human Immunodeficiency Virus Infection</td>
<td>373</td>
</tr>
<tr>
<td></td>
<td>Natella Y. Rakhmanina and Charles J.L. LaPorte</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Drug Testing in Pain Management</td>
<td>397</td>
</tr>
<tr>
<td></td>
<td>Roger L. Bertholf and Gary M. Reisfield</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Effect of Herbal Supplement — Drug Interactions on Therapeutic Drug Monitoring</td>
<td>417</td>
</tr>
<tr>
<td></td>
<td>Alex C. Chin and Leland B. Baskin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index</td>
<td>447</td>
</tr>
</tbody>
</table>