# CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TOXICOLOGY, “OMICS” TECHNOLOGIES, AND TOXICOGENOMICS: A PRIMER</td>
<td>Darrell R. Boverhof and B. Bhaskar Gollapudi</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>INTRODUCTION TO HUMAN HEALTH RISK ASSESSMENT</td>
<td>Irene Baskerville-Abraham, Alison Willis, Bernard Gadagbui, and Lynne T. Haber</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>PRACTICAL CONSIDERATIONS FOR THE APPLICATION OF TOXICOGENOMICS TO RISK ASSESSMENT: EARLY EXPERIENCE, CURRENT DRIVERS, AND A PATH FORWARD</td>
<td>Darrell R. Boverhof, David R. Geter, B. Bhaskar Gollapudi, and Heli Hollnagel</td>
<td>41</td>
</tr>
<tr>
<td>4</td>
<td>APPROACHES AND PRACTICAL CONSIDERATIONS FOR THE ANALYSIS OF TOXICOGENOMICS DATA</td>
<td>Zhenqiang Su, Hong Fang, Weida Tong, Huixiao Hong, Roger Perkins, and Leming Shi</td>
<td>65</td>
</tr>
<tr>
<td>5</td>
<td>GENOMICS IN IDENTIFYING MUTAGENIC MODE OF ACTION IN CARCINOGENESIS</td>
<td>Jiri Aubrecht and Ebru Caba</td>
<td>81</td>
</tr>
<tr>
<td>6</td>
<td>APPLICATION OF GENOMICS FOR PREDICTING AND UNDERSTANDING THE MODE OF ACTION FOR NONGENOTOXIC CARCINOGENS</td>
<td>Mark R. Fielden</td>
<td>99</td>
</tr>
<tr>
<td>7</td>
<td>GENOMICS IN CHARACTERIZING ENDOCRINE TOXICITY</td>
<td>Jorge M. Naciff and George P. Daston</td>
<td>117</td>
</tr>
</tbody>
</table>
CONTENTS

8 STUDYING ORGAN-SPECIFIC TOXICITY USING GENE-EXPRESSION PROFILING 147
M. Ann Mongan and Hisham K. Hamadeh

9 TOXICOGENOMIC STUDIES IN HUMAN POPULATIONS 177
Cliona M. McHale, Luoping Zhang, Alan E. Hubbard, and Martyn T. Smith

10 TOXICOGENOMICS APPLIED TO ECOLOGICAL RISK ASSESSMENT 207
Daniel L. Villeneuve, Dalma Martinović, and Gerald T. Ankley

11 ANALYSIS OF TRANSCRIPTOMIC DOSE–RESPONSE DATA FOR TOXICOLOGY AND RISK ASSESSMENT 237
Russell S. Thomas, Longlong Yang, Harvey J. Clewell, and Melvin E. Andersen

12 TOXICOGENOMICS AS A TOOL FOR VALIDATING ANIMAL TO HUMAN EXTRAPOLATIONS IN CHEMICAL RISK ASSESSMENT: CONCEPTS, APPLICATIONS, AND CHALLENGES 251
Alan Dombkowski and J. Craig Rowlands

13 TOXICOGENOMICS AND ANIMAL ALTERNATIVES 267
Anne S. Kienhuis, Joost H. M. van Delft, and Jos C. S. Kleinjans

14 TOXICOGENOMICS AND THE REGULATORY FRAMEWORK 293

15 STANDARDIZATION OF GENE-EXPRESSION INFORMATION FOR THE SAFETY EVALUATION: ACTIVITIES IN JAPAN 323
Ken-ichi Aisaki and Jun Kanno

16 APPLYING TRANSCRIPTIONAL PROFILING IN DRUG SAFETY EVALUATION 331
Lois D. Lehman-McKeeman and William R. Foster

17 REFRAMING THE RISK ASSESSMENT PARADIGM: TOWARD A SYSTEMS BIOLOGY APPROACH 349
Sarah N. Campion and Kim Boekelheide

INDEX 357