Contents

Foreword ix
Preface xi

1. Microarrays: An Overview 1
   Jeffrey P. Gregg

2. Microarray Scanning and Data Acquisition 29
   Siobhan Pickett, Trent Basarsky, Damian Verdnik, and David Wellis

3. Microarray Image and Data Analysis 63
   Shishir Shah and Soheil Shams

4. Statistical Inference in Array Genomics 109
   Robert Nadon, Erik Woody, Peide Shi, Nazar Rqhei, Hermann Hubschle, Edward Susko, and Peter Ramm

5. cDNA Array Strategies and Alternative Approaches in Neuroscience: Focus on Radioactive Probes 141
   Kevin G. Becker, Tanya Barrett, and Laurie W. Whitney

6. Custom-Built cDNA Arrays for the Study of Neuronal Differentiation and Disease: The Smart Chip 157
   Lillian W. Chiang, Dave Ficenec, and Jill M. Grenier

7. Oligonucleotide Arrays and Gene Expression Profiling of the Brain: Brainiacs Express Themselves 175
   Tarif A. Awad, David J. Lockhart, and Carrolee Barlow
8. The Use of Fixed Human Postmortem Brain Tissue to Study mRNA Expression in Neurodegenerative Diseases: Applications of Microdissection and mRNA Amplification
Vivianna M. D. Van Deerlin, Stephen D. Ginsberg, Virginia M.-Y. Lee, and John Q. Trojanowski

Marie-Claude Potier, Nathalie Gibelin, Bruno Cauli, Béatrice Le Bourdellès, Bertrand Lambolez, Geoffroy Golfier, Sonia Kuhlmann, Philippe Marc, Frédéric Devaux, and Jean Rossier

10. Custom cDNA Microarrays Derived from Subtracted Libraries for Neural Gene Discovery and Expression Analysis
Daniel H. Geschwind and Stanley F. Nelson

11. Tracing Genetic Information Flow from Gene Expression to Pathways and Regulatory Networks
Stefanie Fuhrman, Patrik D’haeseleer, Shoudan Liang, and Roland Somogyi

Appendix A. Informatics and Web Resources
Appendix B. Company and Array-Related Web Resources
Contributors
Abbreviations
Index