
Contents

<i>Preface</i>	<i>v</i>
<i>Contributors</i>	<i>ix</i>
<i>Contents of Volume II</i>	<i>xi</i>

SECTION I: DATA AND DATABASES

1. Managing Sequence Data	3
<i>Ilene Karsch Mizrahi</i>	
2. RNA Structure Determination by NMR	29
<i>Lincoln G. Scott and Mirko Hennig</i>	
3. Protein Structure Determination by X-Ray Crystallography	63
<i>Andrea Ilari and Carmelinda Savino</i>	
4. Pre-Processing of Microarray Data and Analysis of Differential Expression	89
<i>Steffen Durinck</i>	
5. Developing an Ontology	111
<i>Midori A. Harris</i>	
6. Genome Annotation	125
<i>Hideya Kawaji and Yoshihide Hayashizaki</i>	

SECTION II: SEQUENCE ANALYSIS

7. Multiple Sequence Alignment	143
<i>Walter Pirovano and Jaap Heringa</i>	
8. Finding Genes in Genome Sequence	163
<i>Alice Carolyn McHardy</i>	
9. Bioinformatics Detection of Alternative Splicing	179
<i>Namshin Kim and Christopher Lee</i>	
10. Reconstruction of Full-Length Isoforms from Splice Graphs	199
<i>Yi Xing and Christopher Lee</i>	
11. Sequence Segmentation	207
<i>Jonathan M. Keith</i>	
12. Discovering Sequence Motifs	231
<i>Timothy L. Bailey</i>	

SECTION III: PHYLOGENETICS AND EVOLUTION

13. Modeling Sequence Evolution	255
<i>Pietro Liò and Martin Bishop</i>	
14. Inferring Trees	287
<i>Simon Whelan</i>	

15.	Detecting the Presence and Location of Selection in Proteins.	311
	<i>Tim Massingham</i>	
16.	Phylogenetic Model Evaluation	331
	<i>Lars Sommer Jermiin, Vivek Jayaswal, Faisal Ababneh,</i> <i>and John Robinson</i>	
17.	Inferring Ancestral Gene Order	365
	<i>Julian M. Catchen, John S. Conery, and John H. Postlethwait</i>	
18.	Genome Rearrangement by the Double Cut and Join Operation	385
	<i>Richard Friedberg, Aaron E. Darling, and Sophia Yancopoulos</i>	
19.	Inferring Ancestral Protein Interaction Networks.	417
	<i>José M. Peregrín-Alvarez</i>	
20.	Computational Tools for the Analysis of Rearrangements in Mammalian Genomes	431
	<i>Guillaume Bourque and Glenn Tesler</i>	
21.	Detecting Lateral Genetic Transfer: <i>A Phylogenetic Approach</i>	457
	<i>Robert G. Beiko and Mark A. Ragan</i>	
22.	Detecting Genetic Recombination.	471
	<i>Georg F. Weiller</i>	
23.	Inferring Patterns of Migration	485
	<i>Paul M.E. Bunje and Thierry Wirth</i>	
24.	Fixed-Parameter Algorithms in Phylogenetics	507
	<i>Jens Gramm, Arfst Nickelsen, and Till Tantau</i>	
	<i>Index</i>	537
	<i>Evolution Index</i>	551