

---

# Contents

<i>Preface</i> .....	<i>v</i>
<i>Contributors</i> .....	<i>ix</i>
1 Introduction to Bioinformatics .....	1
<i>Dilara Ayyildiz and Silvano Piazza</i>	
2 Protocol for DNA Microarrays on Glass Slides .....	17
<i>Kathleen M. Eyster</i>	
3 Data Warehousing with TargetMine for Omics Data Analysis .....	35
<i>Yi-An Chen, Lokesh P. Tripathi, and Kenji Mizuguchi</i>	
4 A Review of Microarray Datasets: Where to Find Them and Specific Characteristics .....	65
<i>Amparo Alonso-Betanzos, Verónica Bolón-Canedo, Laura Morán-Fernández, and Noelia Sánchez-Marroño</i>	
5 Statistical Analysis of Microarray Data .....	87
<i>Ricardo Gonzalo Sanz and Alex Sánchez-Pla</i>	
6 Feature Selection Applied to Microarray Data .....	123
<i>Amparo Alonso-Betanzos, Verónica Bolón-Canedo, Laura Morán-Fernández, and Borja Seijo-Pardo</i>	
7 Cluster Analysis of Microarray Data .....	153
<i>Manuel Franco and Juana-Maria Vivo</i>	
8 Classification of Microarray Data .....	185
<i>Noelia Sánchez-Marroño, Oscar Fontenla-Romero, and Beatriz Pérez-Sánchez</i>	
9 Microarray Data Normalization and Robust Detection of Rhythmic Features .....	207
<i>Yolanda Larriba, Cristina Rueda, Miguel A. Fernández, and Shyamal D. Peddada</i>	
10 HPC Tools to Deal with Microarray Data .....	227
<i>Jorge González-Domínguez and Roberto R. Expósito</i>	
11 ROC Curves for the Statistical Analysis of Microarray Data .....	245
<i>Ricardo Cao and Ignacio López-de-Ullibarri</i>	
12 Missing-Values Imputation Algorithms for Microarray Gene Expression Data .....	255
<i>Kobbalan Moorthy, Aws Naser Jaber, Mohd Arfian Ismail, Ferda Ernawan, Mohd Saberi Mohamad, and Safaai Deris</i>	
13 Computer Tools to Analyze Microarray Data .....	267
<i>Giuseppe Agapito</i>	

## Contents

14	Challenges and Future Trends for Microarray Analysis.....	283
	<i>Verónica Bolón-Canedo, Amparo Alonso-Betanzos,</i>	
	<i>Ignacio López-de-Ullibarri, and Ricardo Cao</i>	
	<i>Index</i> .....	295