

Contents

<i>Contributors</i>	<i>xi</i>
<i>Abbreviations</i>	<i>xv</i>
<i>Foreword</i>	<i>xix</i>
<i>Introduction</i>	<i>xxi</i>
PART I: Introduction to Genome Polymorphisms	1
1. DNA Polymorphisms and Genome Structure: Different Scales of Variation in the Human Genome.....	3
Andrea Novelletto and Bianca Maria Ciminelli	
2. Single-Nucleotide Polymorphisms: An Overview of the Sequence Polymorphisms.....	23
Eugenio D'Atanasio, Fulvio Cruciani and Beniamino Trombetta	
PART II: Forensic Genetic Markers	51
3. Forensic Identity Markers: An Overview of Forensic Autosomal STRs and SNPs.....	53
Debora Vergani	
4. The Y-Chromosomal STRs in Forensic Genetics: Y Chromosome STRs.....	77
Debora Vergani	
5. The X-Chromosomal STRs in Forensic Genetics: X Chromosome STRs.....	91
Vânia Pereira and Leonor Gusmão	
6. Application of Mitochondrial DNA as a Tool in the Forensic Field: Update and New Perspectives in mtDNA analysis	113
Manuel Crespillo Márquez, Pedro A. Barrio Caballero and Carolina Núñez Domingo	
PART III: Novelties in Forensic Genetics	147
7. Sequencing Technology in Forensic Science: Next-Generation Sequencing	149
Runa Daniel and SallyAnn Harbison	

8. Forensic Analysis of Externally Visible Characteristics: Phenotyping.....	201
Daniele Podini and Katherine B. Gettings	
9. Forensic Ancestry Inference: Data Requirements, Analysis Methods, and Interpretation of Results.....	225
Ozlem Bulbul and Kenneth K. Kidd	
10. Online Population Data Resources for Forensic SNP Analysis with Massively Parallel Sequencing: An Overview of Online Population Data for Forensic Purposes	241
Christopher Phillips, Jorge Amigo, Dennis McNevin, Maria de la Puente, Elaine Y. Y. Cheung, and Maria Victoria Lareu	
11. Forensic Anthropology Issues: A Synergy between Physical and Molecular Methods—The Contribution of Degraded DNA Analysis to Physical and Forensic Anthropology	289
Elena Pilli, Elisa Castoldi, and Cristina Cattaneo	
12. The Molecular Autopsy: Complementary Study to Molecular Autopsy	337
Silvia Zoppis, Alejandro Blanco-Verea, and Maria Brion	
13. Wildlife Forensics: DNA Analysis in Wildlife Forensic Investigations.....	357
Rita Lorenzini and Luisa Garofalo	
14. Forensic Entomology: The Utility of Insects at Court and in Human Identification.....	385
Simonetta Lambiase and Aaron M. Tarone	
PART IV: Company Innovations.....	417
15. Getting the Most Information from Every Sample: Improved Length-Based and Sequence-Based Analysis.....	419
Rohaizah I. James	
16. ParaDNA® Technology: A Tool for Rapid Identification of DNA and Body Fluids	433
Laura Dodd, Stephanie Regan and Tobias Hampshire	
17. DEPArray™ System: Key Enabling Technology for Cell Separation from Forensic Mixtures.....	459
Roberta Aversa, Francesca Fontana, Gianni Medoro, and Nicolò Manaresi	
18. Rapid DNA by ANDE Corporation: A Useful Tool for Disaster Victim Identification	475
Rosemary Turingan Witkowski and Richard F. Selden	

19. Massively Parallel Sequencing as an Operational Forensic Tool: Current and Future Perspectives—Improving Results for Current Applications and Paving the Way for Expanded Capabilities	497
Nicola J. Oldroyd Clark and Cydne L. Holt	
Index.....	523