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Nota di contenuto	DNA: Forensic and Legal Applications; Contents; Foreword; Preface; Acknowledgments; 1. Biochemistry, Genetics, and Replication of DNA; 1.1 Evolution of Identification: From Faces to Fingerprints to DNA; 1.2 DNA and Heredity; 1.2.1 A Look at DNA from the Outside In; 1.2.2 DNA-The Chemistry; 1.2.3 Unique Sequence and Repetitious DNA; 1.3 DNA Replication; 1.3.1 Replication in the Cell; 1.3.2 Cloning (Gene Amplification); 2. Biological Evidence-Science and Criminal Investigation; 2.1 Crime Scene Investigation-Biological Evidence; 2.1.1 Help the Victim; 2.1.2 Protect the Scene 2.1.3 Document the Scene2.1.4 Search the Scene; 2.1.5 Schematic Drawing Showing Location and Photography of Items of Evidence; 2.1.6 Packaging and Preserving Evidence; 2.1.7 Transport to Laboratory; 2.1.8 Sexual Assault Evidence; 2.1.9 Evidence Handling in the Laboratory; 2.1.10 Report Writing; 2.2 Serology; 2.2.1 Blood; 2.2.2 Semen; 2.2.3 Saliva; 2.2.4 Urine; 2.2.5 Hair; 2.3 Chain of Custody; 3. Forensic DNA Analysis Methods; 3.1 Associative Evidence and

Polymorphism; 3.2 Restriction Fragment-Length Polymorphism; 3.2.1 Isolation of DNA; 3.2.2 Quantification
3.2.3 Restriction Enzymes: DNA Scissors; 3.2.4 Gel Electrophoresis; 3.2.5 Southern Blotting; 3.2.6 Hybridization; 3.2.7 Autoradiography and Visualization of DNA Banding Pattern; 3.2.8 Analysis of RFLP Results; 3.2.9 Probe Stripping from Membrane; 3.2.10 Match Criteria; 3.2.11 Statistics and the Product Rule; 3.3 Polymerase Chain Reaction; 3.3.1 Development and Theory; 3.3.2 Isolation of DNA; 3.3.3 Quantification; 3.3.4 Techniques; 3.4 Analysis of Y-Chromosome STRs; 3.4.1 Y-Chromosome Single-Nucleotide Polymorphism Analysis; 3.5 Analysis of Mitochondrial DNA; 3.5.1 The Mitochondrial Genome
3.5.2 Quantification; 3.5.3 Sequencing; 3.5.4 Interpretation of Sequence Data; 3.5.5 Heteroplasmy; 3.5.6 Statistics; 3.5.7 SNP Analysis of Mitochondrial DNA; 3.6 Problems with PCR; 3.6.1 Contamination; 3.6.2 Degradation; 3.6.3 Sunlight; 3.6.4 Inhibitors; 3.6.5 Allelic Dropout-Null Alleles; 3.6.6 Human Error; 3.7 Underlying Facts and Assumptions in Forensic DNA Testing; 4. Genetics, Statistics, and Databases; 4.1 Human Genetics, Population Genetics, and Statistics; 4.1.1 Power of Forensic DNA Analysis: How Significant Is the Match?; 4.1.2 Genetics and Statistics; 4.1.3 Mendel's Laws of Genetics
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4.16 Paternity Determinations

Sommario/riassunto

Includes a Foreword by Dr. James D. Watson, the co-discoverer of the DNA double helix, and Dr. Jan A. Witkowski. "From the Foreword by Drs. Watson and Witkowski: 'DNA: Forensic and Legal Applications is a comprehensive and invaluable guide to the field, covering topics ranging from collecting samples in the field to presenting the complex results to a jury. We are sure that it will play its part in promoting this most powerful tool in the forensic scientist's armamentarium.' "DNA: Forensic and Legal Applications covers the technology and laws related to DNA, as well as the use
