1. Record Nr. UNINA9910784644203321

Autore	Butler John M (John Marshall), <1969->
Titolo	Forensic DNA typing [[electronic resource]] : biology, technology, and genetics of STR markers / / John M. Butler
Pubbl/distr/stampa	London, : Elsevier Academic Press, c2005
ISBN	1-280-96125-2 9786610961252 0-08-047061-0
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (679 p.)
Disciplina	614.1
Soggetti	DNA fingerprinting DNA - Physiology DNA - Synthesis Forensic genetics Polymerase chain reaction
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Previous ed.: San Diego, Calif. : Academic Press, c2001.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; CONTENTS; FOREWORD; INTRODUCTION; NEW MATERIAL IN THIS SECOND EDITION; AN OVERVIEW OF THE BOOK CHAPTERS; ACKNOWLEDGMENTS; ABOUT THE AUTHOR; 1. OVERVIEW AND HISTORY OF DNA TYPING; HISTORY OF FORENSIC DNA ANALYSIS; STEPS IN DNA SAMPLE PROCESSING; COMPARISONS TO COMPUTER TECHNOLOGY; BIOLOGY; 2. DNA BIOLOGY REVIEW; BASIC DNA PRINCIPLES; POPULATION VARIATION; ADDITIONAL READING; 3. SAMPLE COLLECTION, DNA EXTRACTION AND DNA QUANTITATION; SAMPLE COLLECTION; PRESUMPTIVE TESTS FOR BLOOD, SEMEN, AND SALIVA; DNA EXTRACTION; DNA QUANTITATION; REFERENCES AND ADDITIONAL READING POLYMERASE CHAIN REACTION (PCR) PROCESS4. THE POLYMERASE CHAIN REACTION (DNA AMPLIFICATION); MULTIPLEX PCR; REAL- TIME (QUANTITATIVE) PCR; PRECAUTIONS AGAINST CONTAMINATION; ADVANTAGES AND DISADVANTAGES OF PCR WITH FORENSIC SPECIMENS; REFERENCES AND ADDITIONAL READING; REPEATED DNA; 5. COMMONLY USED SHORT TANDEM REPEAT MARKERS AND

COMMERCIAL KITS; CHOICE OF MARKERS USED BY THE FORENSIC DNA; TYPING COMMUNITY; COMMERCIALLY AVAILABLE STR KITS; DETAILS ON ALLELES PRESENT IN THE 13 CODIS STR LOCI; GENDER IDENTIFICATION WITH AMELOGENIN; STRBASE: A DYNAMIC SOURCE OF INFORMATION ON STR MARKERS
REFERENCES AND ADDITIONAL READINGSTUTTER PRODUCTS; 6. BIOLOGY OF STRs: STUTTER PRODUCTS, NON-TEMPLATE ADDITION, MICROVARIANTS, NULL ALLELES AND MUTATION RATES; NON-TEMPLATE ADDITION; MICROVARIANTS AND 'OFF- LADDER' ALLELES; ALLELE DROPOUT AND NULL ALLELES; MUTATIONS AND MUTATION RATES; REFERENCES AND ADDITIONAL READING; DEGRADED DNA; 7. FORENSIC ISSUES: DEGRADED DNA, PCR INHIBITION, CONTAMINATION, MIXED SAMPLES AND LOW COPY NUMBER; PCR INHIBITION; CONTAMINATION ISSUES; MIXTURES; LOW- COPY NUMBER DNA TESTING; OTHER USES FOR STR TYPING; REFERENCES AND ADDITIONAL READING
ROLE OF ADDITIONAL GENETIC MARKERS IN FORENSIC SCIENCE8. SINGLE NUCLEOTIDE POLYMORPHISMS AND OTHER BI-ALLELIC MARKERS; BASICS OF SINGLE NUCLEOTIDE POLYMORPHISMS (SNPs); SNP TYPING ASSAYS AND TECHNOLOGIES; POTENTIAL APPLICATIONS FOR SNPs IN HUMAN IDENTITY TESTING; OTHER BI- ALLELIC MARKERS; POINTS FOR DISCUSSION; REFERENCES AND ADDITIONAL READING; 9. Y CHROMOSOME DNA TESTING; LINEAGE MARKERS; VALUE OF Y CHROMOSOME ANALYSIS IN HUMAN IDENTITY TESTING; Y CHROMOSOME STRUCTURE; Y- STR MARKERS; ISSUES WITH USE OF Y-STRs IN FORENSIC CASEWORK; Y- SNP AND BI- ALLELIC MARKERS HISTORICAL AND GENEALOGICAL STUDIES WITH THE Y CHROMOSOMETHE THOMAS JEFFERSON- SALLY HEMINGS AFFAIR; SURNAME TESTING AND GENETIC GENEALOGY; POINTS FOR DISCUSSION; REFERENCES AND ADDITIONAL READING; 10. MITOCHONDRIAL DNA ANALYSIS; CHARACTERISTICS OF MITOCHONDRIAL DNA; MITOCHONDRIAL DNA SEQUENCING IN FORENSIC CASEWORK; INTERPRETING AND REPORTING mtDNA RESULTS; LABORATORIES PERFORMING mtDNA TESTING IN THE UNITED STATES; ISSUES IMPACTING INTERPRETATION; SCREENING ASSAYS FOR mtDNA TYPING; POPULATION DATABASES; FUTURE DIRECTIONS IN mtDNA RESEARCH; REFERENCES AND ADDITIONAL READING
11. NON-HUMAN DNA TESTING AND MICROBIAL FORENSICS

Sommario/riassunto

Since the enormously successful first edition of Forensic DNA Typing was published, the Human Genome Project has published a draft sequence of the human genome and completed the "finished? reference sequence. The advent of modern DNA technology has resulted in the increased ability to perform human identity testing-desirable in a number of situations including the determination of perpetrators of violent crime such as murder and rape, resolving unestablished paternity, and identifying remains of missing persons or victims of mass disasters. The technology has been utilized in identifying remai