Perkin Elmer Cetus Dna Thermal Cycler Manual

Blood samples were obtained from selected and unrelated individuals. DNA was extracted with the standard Chelex® 100 (Bio-Rad, CA) extraction procedure (1); DNA samples were amplified in a DNA Thermal Cycler 480 (Perkin Elmer Cetus, NJ) using 10 ng of template DNA.

The large number of molecular protocols available creates a dilemma for those attempting to adopt the most appropriate for streamlined identification and detection of fungal pathogens of interest. Molecular Detection of Human Fungal Pathogens provides a reliable and comprehensive resource relating the molecular detection and identification of major human fungal pathogens. This volume contains expert contributions from international mycologists involved in fungal pathogen research and diagnosis. Following a similar format throughout, each chapter comprises: A brief review of the classification, epidemiology, clinical features, and diagnosis of one or a group of related fungal species An outline of clinical sample collection and preparation procedures A selection of representative stepwise molecular detection protocols A discussion on further research requirements for improving the diagnosis The book offers an indispensable tool for medical, veterinary, and industrial laboratory scientists working in the area of fungal determination. It also constitutes a convenient textbook for undergraduate and graduate students majoring in microbiology and is an essential guide for upcoming and experienced laboratory scientists wishing to acquire and polish their skills in molecular diagnosis of fungal diseases.

The critically acclaimed laboratory standard for forty years, Methods in Enzymology is one of the most highly respected publications in the field of biochemistry. Since 1955, each volume has been eagerlyawaited, frequently consulted, and praised by researchers and reviewers alike. More than 250 volumes have been published (all of them still in print) and much of the material is relevant even today--truly an essential publication for researchers in all fields of life sciences. * Methods for: * DNA isolation and cloning * Synthesizing complementary DNA (cDNA) * Cleaving and manipulating DNA * Selecting useful reporter genes * Constructing vectors for cloning genes * Constructing expression vectors * Site-directed mutagenesis and gene disruption * Identifying and mapping genes * Transforming animal and plant cells * Sequencing DNA * Amplifying and manipulating DNA and PCR * Detecting DNA - protein interaction

A cutting-edge collection of basic and state-of-the-art methods optimized for investigating the molecular biology of this class of retrovirus. These readily reproducible techniques range from methods for the isolation and detection of human retroviruses to cutting-edge methods for exploring the interplay between the viruses and the host. Here, the researcher will find up-to-date techniques for the isolation and propagation of HIV, HTLV, and foamy virus from a variety of sources. There are also assays for determining the cell tropism of HIV-1, the coreceptor usage of HIV-1, and human gene expression with HIV-1 infection by microarrays, as well as for phenotyping HIV-1 infected monocytes and examining their fitness. Highlights include the detection and quantification of HIV-1 in resting CD4+, a new cloning system for making recombinent virus, cDNA microarrays, and the determination of genetic polymorphisms in two recently identified HIV-1 co-factors that are critical for HIV-1 infection.

Methods in DNA Amplification

Laboratory Information Bulletin

Nonisotopic DNA Probe Techniques

Part 1: Technical Backgrounds and Quality Aspects

Methods of Soil Analysis, Part 2

Molecular Mycobacteriology

th This volume comprises the Proceedings of the 15 Congress of the International Society of Forensic Haemogenetics (ISFH), held for the first time in Venezia Lido, th th Italy, on 13 -15 October 1993. The abstracts of the scientific contributions sent to the Congress have been sub divided into chapters with numbers and headings corresponding to the Congress sessions listed in the final programme. A general index of all authors, in alpha betical order, is given at the end of the book. The book consists of 188 contributions and addresses several problems presently being discussed in forensic haemogenetics. The main portion is, of course, devoted to DNA technology: present and future trends in DNA method ology, DNA polymorphisms in paternity testing and in criminal investigation, DNA sequencing, PCR methodology, quality control and quality assurance. Data have been accumulated on population genetics and biostatistics. A new look has been given at old friends, with important contributions on the molecular biology of classical markers. Conventional genetic markers have been studied. Problems connected with genetic typing and human rights have been dealt with in depth, and the history and geography of human genes have been elucidated.

One of the primary references on analytical methods in soil science, Part 2 of the Methods series will be useful to all biogeoscientists, especially those with an interest in microbiology or bioremediation.

The basis for the effective treatment and cure of a patient is the rapid diagnosis of the disease and its causative agent, which is based on the analysis of the clinical symptoms coupled with laboratory tests. Although rapid advance ments have been made in the laboratory diagnosis of virus diseases, the neces sary isolation of the causative virus from the clinical specimens is a relatively long procedure. Viruses which integrate into the cellular DNA (such as human immunodeficiency virus, HIV -1, or hepatitis B virus) are difficult to identify by molecular techniques, while viruses which exist in the clinical material in low concentrations are even more formidable to identify. Recently, the application of the polymerase chain reaction (peR) technique developed by K. D. Mullis and detailed in the study by Saiki et al. (1985) led to a revolution in virus diagnosis. The peR technique was rapidly applied to the diagnosis of viruses in clinical material. Volume 1 of Frontiers of Virology provides new information on the advan tages of the use of the peR for the diagnosis of many human disease-causing viruses, as well as on some problems with its use.

From the Preface Antibody techniques have allowed us to study microorganisms in situ. However, until recently all methodology lacked the sensitivity necessary for environmental work where microorganisms are in most cases present at very low concentrations or where microbial ecosystems contain a myriad of different organisms. Gene probes have been used successfully for a variety of samples, but this method was still not sensitive enough. The next logical step was the application of the recently developed DNA amplification technique known as the polymerase chain reaction, or PCR. Since then, many laboratories around the world have adopted PCR for environmental work. Samples obtained from soils, water and air are enormously complex because they are unknown mixtures of DNA and other compounds. Thus, procedures for target DNA amplification from the environment require special attention. The PCR has allowed us to go beyond the need for culturing prior to analysis of microbial communities. It has been shown that even microorganisms that can be routinely grown in the laboratory undergo some physiological changes when exposed to the environment. One of these changes (first observed by R. Colwell and colleagues) is known as the viable-but-non-culturable state, and seems to be a common occurrence. Thus, the use of culture techniques paint only part of the picture in terms of microbial behavior under environmental conditions. The ability to amplify nucleic acids by the PCR has brought about a myriad of very ingenious modifications to the technique that can then be used to study complex ecosystems. The manner in which the PCR can be modified is only limited by the need and/or the imagination of the researcher. The first manual dedicated specifically to the analysis (by PCR) of environmental samples, Environmental Applications of Nucleic Acid Amplification Techniques presents state of the art methodology for the detection of microorganisms in soil, water, air samples, as well as the amplification of nucleic acids from fossil samples. The manual gives step-by-step procedures for the analysis of these samples. Although several publications have addressed the use of Polymerase Chain Reaction technique, very few of them have been directed toward the application of this technique to environmental samples. This book fills this gap in the literature.

Nonisotopic Probing, Blotting, and Sequencing

DNA Fingerprinting: State of the Science

Human Retrovirus Protocols

The Polymerase Chain Reaction

Clinical Applications of PCR

Proceedings of the Millenium Conference on Rhizosphere Interactions, IACR-Rothamsted, United Kingdom 10– April, 2001

This book looks at 100 items that have profoundly shaped how people watched, studied and engaged with the avian world. Each item contains around 500 words on a double-page spread and include an illustration of the object in question. The book includes the objects listed below as well as many more.The range of items is international and cross-cultural. Subjects include: An Egyptian 'field guide' [early tomb decorations of birds, identifiable as species] Ornithologiae libri tres: the first British bird guide [a 1676 publication that attempted to itemise all British birds known at the time] The Dodo specimen held at the Horniman museum Systema Naturae by Carl Linnaeus [the first-ever system of scientific names in 1758, and still the international standard today] The shotgun The book, The Natural History and Antiquities of Selborne by Gilbert White [1789] HMS Beagle [the ship on which Darwin made his ground-breaking discoveries] Aluminium bird rings [used to record movement and longevity of individuals and species] along with many more modern innovations including walkie talkies, pagers, radio tags and apps.

*Biological Techniques is a series of volumes aimed at introducing to a wide audience the latest advances in methodology. The pitfalls and problems of new techniques are given due consideration, as are those small but vital details not always explicit in the methods sections of journal papers. In recent years, most biological laboratories have been invaded by computers and a wealth of new DNA technology and this will be reflected in many of the titles appearing in the series. The books will be of value to advances researches and graduate students seeking to learn and apply new techniques, and will be useful to teachers of advanced undergraduate courses involving practical or project work. This manual describes the broad array of techniques that are used in insect pathology. It will provide biologists, insect pathologists, entomologists, and those interested in biological control, with the necessary information to work on a variety of pathogen groups. This book will be an essential laboratory reference for insect pathologists. Features include: * Step by-step instructions on how to isolate, identify, culture, bioassay and store the major groups of entomopathogens * Details of the practical knowledge needed by beginners to apply the techniques * Chapters written by an international group of experts * Discussion of safety testing of entomopathogens in mammals and also broader methods such as microscopy and molecular techniques * Provides extensive supplemental literature and recipes for media, fixatives and stains*

Psychiatric genetics is an exciting new discipline that explores how our minds and behavior are influenced by our genes. Increased interest in this area of medical genetics has been sparked by advances in molecular genetic techniques, the genome project, the neurosciences, the role of genes in somatic diseases, and the linking of specific genes with complex mental disorders. This Handbook is the definitive resource on this complex, and sometimes controversial, new field.

The volumes in this series include contemporary techniques significant to a particular branch of neuroscience. They are an invaluable aid to the student as well as the experienced researcher not only in developing protocols in neuroscience but in disciplines where research is becoming closely related to neuroscience. Each volume of Methods in Neurosciences contains an index, and each chapter includes references. Dr. Conn became Editor-in-Chief of the series beginning with Volume 15, so each subsequent volume could be guest-edited by an expert in that specific field. This further strengthens the depth of coverage in Methods in Neurosciences for students and researchers alike. Comprehensive protocols included for the study of: The brain-immune system The neuroimmune system: Effects of the brain on the peripheral immune system Neuroimmune effects from substances of abuse (e.g. cocaine) to hypnosis Measurement of interferons, cytokines, natural killer cells, and major histocompatibility complex molecules Immunohistochemistry methods in the brain Neuropeptides as immunomodulators

Journal of the National Cancer Institute

The Molecular Biology of Autoimmune Disease

Molecular Diagnostics

Interactions in the Root Environment — An Integrated Approach

Recombinant DNA Methodology II

15th Congress of the International Society for Forensic Haemogenetics (Internationale Gesellschaft für forensische Hämogenetik e.V.), Venezia, 13–15 October 1993

Recently many nonisotopic methods of probing specific DNA sequences have been developed as replacements for radioactive labels, such as 32phosphorous and 125iodine. This book brings all of these new methods together in one convenient, easily accessible source. It enables researchers to select the nonisotopic method best suited to their application and to use it to maximum advantage by following the straightforward instructions provided. This book contains chapters on colorimetric, bioluminescent, chemiluminescent, fluorescent, and time-resolved fluorescent detection methods. Each chapter has been written by the inventor or developer of a particular nonisotopic method and thus provides an expert account of the method. Each chapterpresents useful background information and detailed, step-by-step, easy-to-follow, experimental procedures for labeling and detection. Gives extensive practical information Covers major types of nonisotopic labels and procedures Presents background information for each method Provides strategies and detailed experimental procedures for labeling and detecting DNA sequences by Fluorescence Chemiluminescence Bioluminescence Colorimetry

A comprehensive compilation of research techniques necessary for investigating the virology, immunology and molecular biology of HIV-1. Protocols are also provided which represent state of the art approaches to a wide spectrum of HIV related issues.

In Vascular Disease: Molecular Biology and Gene Therapy Protocols, Andrew Baker and a noted panel of expert investigators describe today's most powerful molecular methods for investigating the pathogenesis of vascular disease. These detailed, easy-to-follow techniques range from methods that have been used successfully to identify specific mutations involved in cardiovascular disorders, to those for transferring genes associated with cardiovascular disease into various vascular cell types by in vitro and in vivo routes. There are methods to identify novel genes and generate full-length cDNAs, to study gene transcription and promoter activity easily and effectively, and to ascertain precisely gene expression levels within the individual cell types in different pathophysiological conditions. Accurate methods to quantify apoptosis in both cultured cells and pathological specimens are also given. Vascular Disease: Molecular Biology and Gene Therapy Protocols offers today's vascular biologist and gene therapist an unprecedented ability to study the pathogenesis of vascular disease and readily to probe the potential for gene-based therapies. Powerful and productive, the techniques presented here operate across a wide range of exciting research areas, and promise spectacular therapeutic breakthroughs in the ongoing battle against vascular disease.

The polymerase chain reaction (PCR) - an in Vitro techniques for producing large amounts of a specific DNA fragment - has rapidly become established as one of the most important, impressive and fascinating methods of molecular biology as well as clinical diagnostics. In the seven years since'the technique was published, it has had a major impact on medical research. However, as there are still problems in instruments, standardized protocols for diagnostic applications and unsolved difficulties to avoid cross-contaminations on the one hand and on the other hand the even present question of how to interpret the biological value of a PCR result, most clinicians prefer to further wait until these topics are clarified. It is the aim of this book to give the reader lab-proven protocols from experienced scientists as well as a general introduction to alternative DNA-amplification procedures and their possible usage such as the NASBA or LCR. This book is divided into four major parts to provide a theoretical (first and second section) and a practical framework for a better understanding of the new technology. In the first part we provide an up-to-date summary of basic problems in this rapidly evolving field. We demonstrate, for example how to use fixed tissue materials and how to quantify PCR products as well as how to prepare nucleic acids in a safe, convenient and proper way, or even how to sequence directly PCR products for the analysis of the DNA structure.

Plant Nutrition for Sustainable Food Production and Environment

Handbook of Methods in Aquatic Microbial Ecology

Biotechnology - The Science and the Business

A History of Birdwatching in 100 Objects

Molecular Detection of Human Fungal Pathogens

Techniques in HIV Research

No one whose opinion deserves a moment's consideration can doubt that most of the great positive evils of the world are in themselves removable, and will, if human affairs continue to improve, be in the end reduced to narrow limits. J. S. Mill, Utilitarianism, II, 1863 Mill was not writing about herpesviruses, but had he known them as we do, he would have included them among the great positive evils of the world. They cause disease and premature death, and are very costly to our society. There is no loftier aim than to cure or prevent human infections with these viruses. The objective of much of the current research on herpesviruses is directed toward an understanding of the molecular mechanisms involved in initiation of infection, establish ment and termination of latent state, virus multiplication, and the destruction of cells which ultimately is the basis of the diseases caused by these viruses. At no time during the past 80 years, since members of the herpesvirus family were first discovered, has there been so much progress in our understanding of the biology of these viruses as in the past few years. Along with the development of a greater understanding of the molecular biol ogy of the well-known herpesviruses we have witnessed the isolation of new human herpes viruses.

Distribution of DYS391, DYS392, DYS393, DYS385, Alleles in a Southern Italian Population Sample

DNA fingerprinting had a well-defined birthday. In the March 7, 1985 issue of Nature, Alec Jeffreys and coworkers described the first develop ment ofmu1tilocus probes capable of simultaneously revealing hypervari ability at many loci in the human genome and called the procedure DNA fingerprinting. It was a royal birth in the best British tradition. In a few months the emerging technique had permitted the denouement of hith erto insoluble immigration and paternity disputes and was already heralded as a major revolution in forensic sciences. In the next year (October, 1986) DNA fingerprinting made a dramatic entree in criminal investigations with the Enderby murder case, whose story eventually was turned into a best-selling book ("The Blooding" by Joseph Wambaugh). Today DNA typing systems are routinely used in public and commercial forensic laboratories in at least 25 different countries and have replaced conventional protein markers as the methods of choice for solving paternity disputes and criminal cases. Moreover, DNA fingerprinting has emerged as a new domain of intense scientific activity, with myriad applications in just about every imaginable territory of life sciences. The Second International Conference on DNA Fingerprinting, which was held in Belo Horizonte, Brazil in November of 1992, was a clear proof of this. This compendium is the result of the FEMS Workshop on "Rapid Diagnosis of Mycoplasmas" which I organized and which took place in Jerusalem, Israel, August 11-23, 1991. The first week's sessions were held at a resort on the outskirts of Jerusalem and consisted of lectures and discussions. This part was modelled along the lines of the Gordon Conference in the USA, i.e., in an intimate atmo sphere in which everyone could mix and exchange ideas, and was very benefi cial. About 100 scientists from around the world attended the first week. Dur ing the first week, the biology, molecular biology and pathophysiology of myco plasmas, as well as all the main diagnostic methods were covered, including both conventional and the newer technologies. The session on mycoplasmas in the human urogenital tracts was held in conjunction with the Israel Society for the Study and Prevention of Sexually Transmitted Disease. The second week was a laboratory session and was held at the Hebrew University-Hadassah Medical School campus in Ein Karem, Jerusalem. All ex periments were conducted by eminent specialists in their field. The lab session had 36 participants from 19 countries who used the most modern techniques for the diagnosis of mycoplasmas in medicine, veterinary medicine and agri culture. The efficacy of several commercial kits were also tested at this time. I want to again thank everyone who helped and supported this work shop, as well as the authors of the various chapters.

Techniques and Clinical Applications

Manual of Techniques in Insect Pathology

Plant Molecular Biology 2

Molecular Biology and Gene Transfer Protocols[

Handbook of Psychiatric Genetics

Vascular Disease

This is a concise guide to the combined use of classical and molecular methods for the genetic analysis and breeding of fungi. It presents basic concepts and experimental designs, and demonstrates the power of fungal genetics for applied research in biotechnology and phytopathology. Case studies of Saccharomyces cerevisiae, Candida albicans, Aspergillus niger, Neurospora crassa, Podospora anserina, Phytophthora infestans and others are included.

Biotechnology has not stood still since 1991 when the first edition of Biotechnology - The Science and the Business was published. It was the first book to treat the science and business of technology as an integrated subject and was well received by both students and business professionals. All chapters in this second edition have been updated and revised and some new chapters have been introduced, including one on the use of molecular genetic techniques in forensic science. Experts in the field discuss a range of biotechnologies, including pesticides, the flavor and fragrance industry, oil production, fermentation and protein engineering. On the business side, subjects include managing, financing, and regulation of biotechnology. Some knowledge of the science behind the technologies is assumed, as well as a layperson's view of buying and selling. As with the first edition, it is expected that this book will be of interest to biotechnology undergraduates, postgraduates and those working in the industry, along with students of business, economics, intellectual property law and communications.

In the history of the International Plant Nutrition Colloquium from its first meeting in 1954, this meeting, the 13th Colloquium, is the first to be held in Asia and will be the last in the 20th century. The 20th century has seen huge changes in the number and activities of mankind. Our population has increased from around 1. 7 billion to more than 5. 8 billion and technological innovations have completely altered our way of living. As a consequence of such rapid change, we are facing many problems including changes in our environment of a global scale. But, while food shortage has been a serious concern to mankind throughout our history, serious food shortages in the 20th century have been confined to limited times and areas. As Lester Brown discusses in this volume, farmers have increased food production heroically on demand. We, the plant nutritionists should be proud of our support to the world's farmers which has helped them make their achievement possible. During the 20th century, the science of plant nutrition also has achieved great progress as described by Jack Loneragan; it became established as a discipline firmly based in science, defined the chemical elements supporting plant growth, and has contributed to improvements in plant production and environmental quality, as readers will find in many contributions in this volume.

This volume contains a selection of papers presented at the Rothamsted Millennium Conference "Interactions in the Root Environment - an Integrated Approach". The meeting brought together scientists from a range of disciplines interested in the relationship between soil biology and plant growth, reflected by the contents of the volume. Topics range from root development and nutrient flow, plant-microbe and plant-plant signaling, methods for studying bacterial and fungal diversity, to the exploitation of rhizosphere interactions for biological control of diseases and soil remediation. Authors include many internationally-recognized experts in their field and the contributions range from reviews to research papers. The volume presents a timely and wide-ranging overview of the interactions between plants, microbes and soil. It should prove an indispensable resource for students and others seeking an introduction to the topic, in addition to scientists already conversant with the area of research.

Characterization of the Cysteine-rich Fibroblast Growth Factor Receptor Complex

Virology and Molecular Biology

Environmental Applications of Nucleic Acid Amplification Technology

Proceedings of the XIII International Plant Nutrition Colloquium, 13–19 September 1997, Tokyo, Japan

Distribution of DYS391, DYS392, DYS393, DYS385, Alleles in a Southern Italian Population Sample
Immunobiology and Prophylaxis of Human Herpesvirus Infections

Autoimmune diseases are common and often associated with considerable morbidity or - in diseases such as IDDM, myasthenia gravis and multiple sclerosis - mortality. In this volume, experts of international stature in basic science and clinical medicine with a common interest in understanding the normal and aberrant immune response present their experiences. It was their intention to fur- ther the understanding of potential clinical application of scientific observations and to help to comprehend the huge amount of results in autoimmunity research.

"Useful and timely." ---Mutagenesis "Of considerable value." ---Journal of Medical Genetics "Quite readable....a comprehensive overview....perfectly covers the needs of those researchers who have to decide on the best strategy to identify damage or mutations at the molecular level." ---Trends in Cell Biology "The formats of the presentations are uniform and ample and up-to-date references are provided at the end of each chapter...will be welcomed by postgraduate researchers of all ages and should retain its usefulness for a long time." ---Endeavour, 21(4), 1997 This important resource thoroughly reviews a wide range of techniques used in mutagenesis research-ranging from established techniques to recently developed methodologies-based on the polymerase chain reaction. DNA damage analysis, DNA repair assays, and mutation detection are a few of the techniques featured. Chapters present detailed experimental protocols benefiting researchers and students in the fields of toxicology, biotechniques, molecular biology, photobiology, medical genetics, and oncology.

The VI NATO Advanced Study Institute on Plant Molecular Biology, held in Elmau, Bavaria, Germany, from 14 to 23 May, 1990, brought together representative scientific leaders from all over the world to review their lastest results. They presented lectures or posters, participated in lively discussions, educated students, and exchanged views and plans for future research in this highly exciting field of science. The experiments, data and questions were naturally varied, but all of them illustrate that the modern techniques of molecular biology, complemented by developments in immunology, genetics, and ultrastructural research, have pervaded nearly every branch of biology. The presentations show that these approaches have tremendously increased our potential both for fundamental research, our understanding of life, and by analogy to the precedents of physics and chemistry, have led and will continue to lead to "engineering sciences" and implicitly, to new industrial processes. Some of these applications are a matter of debate in the public domain today and many feel that the development of industrial gene technology requires the attention of the whole scientific community. Nevertheless, the implications of this research for the genetic improvement of agricultural plants are profound. Some of the near term technologies being developed provide novel approaches for improving the utility of food crops. They can also result in reduced dependence on the use of pesticides for food production.

Immunological Methods, Volume IV provides information pertinent to the methods in immunological research. This book focuses on cells, clones, and cell lines, as well as on their components and secreted products. Organized into 21 chapters, this volume begins with an overview of hybridoma methodology as the most celebrated immunological method. This text then discusses cell fusion, hybridoma technology, and everything related to monoclonal antibodies. Other chapters consider another molecular biology method, which describes the procedure required for establishing a partitioned cDNA-library. This book provides as well a comprehensive analysis of mRNA populations in which every messenger species appears as a distinct element, and so provides accurate answers to questions concerning genetic complexity. The final chapter provides an example of how transgenic mice can be used to study the development of T cell repertoires. This book is a valuable resource for cell biologists, scientists, immunologists, and research workers.

Neuroimmunology
Microbiological and Biochemical Properties
Fungal Genetics
Diagnosis of Human Viruses by Polymerase Chain Reaction Technology
Rapid Diagnosis of Mycoplasmas
A laboratory guide for in vivo studies of DNA methylation and protein/DNA interactions

Since the publication of Nonistopic DNA Probe Techniques in 1992, the move away from radioactive materials for research and diagnostics has continued. This is due in part to public awareness of the hazards of radioactive waste and laws making radioactive disposal more difficult and costly and to improvement in both the sensitivity and convenience of nonisotopic techniques. Several new nonisotopic techniques have been developed and substantial improvements made to existing nonisotopic methods since 1992, and these are now included in Nonisotopic Probing, Blotting, and Sequencing. Nonisotopic Probing, Blotting, and Sequencing is an updated, expanded edition of the bestseller, Nonisotopic DNA Probe Techniques. It has been thoroughly revised to include the latest improvements in nonisotopic tagging techniques for macromolecules. Like its predecessor, it enables researchers to select the best nonisotopic method for their needs and maximize success by following its straightforward protocols. Provides strategies and detailed procedures for labeling, blotting, and probing specific nucleic acid sequences and, with this edition, protein molecules Gives protocols for nonisotopic DNA sequencing - new in this edition Gives extensive, practical information Presents background information for each method Provides expert accounts from the inventor or developer of each method Contains seven entirely new chapters Covers all major types of nonisotopic procedures for labeling and detection

Handbook of Methods in Aquatic Microbial Ecology is the first comprehensive compilation of 85 fundamental methods in modern aquatic microbial ecology. Each method is presented in a detailed, step-by-step format that allows readers to adopt new methods with little difficulty. The methods represent the state of the art, and many have become standard procedures in microbial research and environmental assessment. The book also presents practical advice on how to apply the methods. It will be an indispensable reference for marine and freshwater research laboratories, environmental assessment laboratories, and industrial research labs concerned with microbial measurements in water.

This work presents an overview of the clinical pathology of mycobacterial and nonpathogens, data on genetically based methodologies for clinical testing, straightforward protocols for molecular manipulations, and theoretical explanations of the molecular mechanisms involved. It explains the safest and most efficient methods for detecting mycobacterium avium complex, providing the means to combat this common secondary opportunistic infection in AIDS patients.

It is remarkable that each month the quantity ofarticles published on AIDS still that address numbers in the thousands. The basic, clinical and sociological aspects this epidemic have been vigorously investigated, and equally as extensively reported in traditional as well as new journals. Therefore, what can the reader ofthis volume expect to find that is different from the information already found in the literature? The authors of this text met in October 1993 to discuss not only AIDS and its effects on the nervous system but also to address the problem from the point of view of the diverse technologies that are used in understanding the disease. Just as the recog nition ofoncogenic viruses gave us insights into cellular genes that govern growth, the study ofHIV-I in the nervous system has opened new areas ofinvestigation in the nervous system. Use of human fetal and glioma-derived cell cultures, discovery of toxins in the nervous system, release and damage of cytokines in the brain, the neuropathic effects of HIV proteins, the investigation of new treatment for neuro AIDS, and virus detection strategies to identify latent HIVI infection are described in this volume. Basic and clinical investigators from more than thirty laboratories around the world contributed to the ideas discussed at the meeting, "Technical Advances in AIDS Research in the Human Nervous System.

Technologies for Detection of DNA Damage and Mutations
SV40 Protocols
Technical Advances in AIDS Research in the Human Nervous System
Advances in Forensic Haemogenetics
Immunological Methods
A Heterotrimeric Complex Implicated in Regulating Intracellular Fibroblast Growth Factor Levels

James D. Watson When, in late March of 1953, Francis Crick and I came to write the first Nature paper describing the double helical structure of the DNA molecule, Francis had wanted to include a lengthy discussion of the genetic implications of a molecule whose struc ture we had divined from a minimum of experimental data and on theoretical argu ments based on physical principles. But I felt that this might be tempting fate, given that we had not yet seen the detailed evidence from King's College. Nevertheless, we reached a compromise and decided to include a sentence that pointed to the biological significance of the molecule's key feature-the complementary pairing of the bases. "It has not escaped our notice," Francis wrote, "that the specific pairing that we have postulated immediately suggests a possible copying mechanism for the genetic material." By May, when we were writing the second Nature paper, I was more confident that the proposed structure was at the very least substantially correct, so that this second paper contains a discussion of molecular self-duplication using templates or molds. We pointed out that, as a consequence of base pairing, a DNA molecule has two chains that are complementary to each other. Each chain could then act ". . . as a template for the formation on itself of a new companion chain, so that eventually we shall have two pairs of chains, where we only had one before" and, moreover, " ...

The books Molecular Diagnostics Part 1 and 2 provide a comprehensive and practical overview of the state-of-the-art molecular biological diagnostic strategies that are being used in a wide variety of disciplines. The editors and experts in their respective fields have combined their knowledge to write these two books. Many years of experience in the development, application and quality control of molecular diagnostic methods is reflected herewith. Molecular Diagnostics Part 1 is dedicated to the theoretical backgrounds of the technologies often applied in molecular diagnostics, in which nucleic acid amplification methods (such as real-time PCR), sequencing and bioinformatics are the basic tools. The assay design and -development, combined with items of trouble-shooting are described in detail. As a foundation of reliable molecular diagnostic assays, the quality control required for validation, implementation and performance of molecular diagnostic assays is thoroughly discussed. This book also provides extensive information for those working with molecular techniques in a wide variety of research applications using conventional and real-time PCR technology, Sanger and high throughput sequencing techniques, and bioinformatics. Molecular Diagnostics Part 2 highlights the applications of the molecular diagnostic methods in the various diagnostic laboratories, comprising: - Clinical microbiology - Clinical chemistry - Clinical genetics - Clinical pathology - Molecular hematopathology - Veterinary health - Plant health - Food safety Both full-colour and well-illustrated books are particularly valuable for students, clinicians, scientists and other professionals who are interested in (designing) molecular diagnostic methods and for those who wish to broaden their knowledge on the current molecular biological revolution. The information in the books highlights the trend of the integration of multiple (clinical) disciplines into one universal molecular laboratory.

Clinical Applications of PCR offers an unprecedented collection of core PCR techniques for the study and diagnosis of human diseases. Cutting-edge and essential for today's diagnostic laboratories, these techniques heavily utilize nonisotopic, solution phase, and in situ amplification methods. A significant number of chapters describe applications exploiting the exquisite sensitivity of PCR in the detection of rare or single cells, as in identifying fetal cells circulating in maternal blood, preimplantation embryo diagnosis, or detecting circulating cancer cells. The methods described in Clinical Applications of PCR will well serve diverse clinical specialties ranging from hematology/oncology, human genetics, and microbiology, to virology, pathology, and infectious diseases. The book repeatedly demonstrates the power of PCR-its high sensitivity, specificity, and ability to rapidly discriminate sequence variations.

Simian virus 40 gained notoriety in the 1960s because it was found to be a contaminant of polio and adenovirus vaccines that had been administered to millions of healthy individuals worldwide. The public health implications of this revelation provided the initial impetus for an in-depth study of SV40 biology. Later work showed that SV40 DNA sequences as well as infectious virus are in fact found in human tumors and may have contributed to oncog- esis. It also turned out that SV40 uses mostly cellular machinery to carry out many steps in viral infection, which makes it a powerful probe for examining many fundamental questions in eukaryotic molecular biology. SV40 Pro- cols consolidates a number of well-tested step-by-step techniques in one v- ume; experts with hands-on experience in particular methods give detailed accounts of their optimized experimental protocols, so that the beginner, as well as more experienced researchers, may readily overcome problems of ambiguity often present in the literature. As with other DNA tumor viruses, the response of cultured cells to SV40 infection depends upon the species being infected. Monkey cells s- port virus production, which leads to their death, whereas rodent cells p- duce only the early proteins and acquire a transformed phenotype. Thus, SV40 Protocols is organized in two sections. The first relates to assays of the lytic cycle of the virus, and the second deals with transformation.

Distribution of DYS19, DYS389 I, DYS389 II, DYS390 Alleles in a Southern Italian Population Sample

Principles and Practice