Nikon Microscope Intensilight Service Manual

Archaeological Soil and Sediment MicromorphologyEncyclopedia of Spectroscopy and SpectrometryChromosomal MutagenesisSimultaneous Statistical InferenceExpect to WinWater in Biomaterials Surface ScienceIsotachophoresisNMR for Liquid Fossil FuelsPeptide and Protein Drug DeliveryCRISPR-Cas EnzymesExon Skipping and Inclusion TherapiesMethods in Membrane LipidsEnzymes of EpigeneticsMolecular Diagnostic PCR HandbookSkeletal Development and RepairMicrofluidic DiagnosticsMicrofluidics for Single-Cell AnalysisMicrodroplet TechnologySingle-Molecule Enzymology: Fluorescence-Based and High-Throughput MethodsNeutrophil Methods and ProtocolsHepatitis C VirusesElectrokinetically-Driven Microfluidics and NanofluidicsPhagocyte-pathogen InteractionsThe NucleolusBioluminescenceGlycoanalysis ProtocolsFibrosisInsect ImmunologyPhysiological Systems in InsectsDevelopment of a Fully Integrated “Sample-In-Answer-Out” System for Automatic Genetic AnalysisElectron Microscopy of Model SystemsEmerging Nanotechnologies in DentistryYeast GeneticsBCL-2 Family ProteinsMolecular Analysis and Genome DiscoveryThermometry at the NanoscaleThermophilic Microorganisms and Life at High TemperaturesSoft Matter NanotechnologyThe Bacterial NucleoidFather and Son, Honey Hunt Has Begun!

Archaeological Soil and Sediment Micromorphology

Presents the latest ideas and research on molecular hydration and hydration forces, and how they determine the interaction between water molecules and biomaterials surfaces. Consisting of three sections; theoretical aspects, analytical aspects and practical applications, it begins by placing the properties of water in a proper molecular perspective. The analytical aspects and practical applications offer a complete overview with new insights into the biomaterials/water interface by: - Discussing the latest approaches to the characterisation of water at interfaces and surface modification of biomaterials - Examining the problems related to the understanding and characterisation of interfacial water - Providing new perspectives of the interfacial interactions between materials and the physiological aqueous environment An invaluable resource for researchers in biomaterials surface science and the biotechnology industry.

Encyclopedia of Spectroscopy and Spectrometry

"Chronic hepatitis C is a serious public health problem and a disease burden in many parts of the world. The discovery of the causative agent, hepatitis C virus (HCV), in 1989 has initiated an almost unparalleled research activity in academic and pharmaceutical-industry laboratories over the ensuing years. This book aims to provide a state-of-the-art account of recent advances in the molecular and cellular biology, immunology and pathogenesis of HCV. It also aspires to discuss new

strategies as well as outstanding issues for future research. Hepatitis C has been dubbed the "silent epidemic" because it is generally asymptomatic for decades after infection; its victims often are unaware of the infection until it is too late for therapy. What is the genetic makeup and molecular features that make HCV such a "silent" yet deadly assassin? This question, in fact, is the premise by which this monograph was prepared -- it was an attempt to decode the secrets of HCV, one viral gene at a time. To that end, we assembled a team of highly regarded experts from different disciplines who have prepared 16 chapters on various aspects of HCV, including the HCV genome and the role(s) of each viral gene product within the context of the viral life cycle, host interactions, and regulation of host antiviral defense and adaptive immunity."--Home page.

Chromosomal Mutagenesis

Enzymes of Epigenetics: Part B, one of two new volumes in the Methods in Enzymology series, continues the legacy of this premier serial with quality chapters authored by leaders in the field. This volume covers research methods that are employed in the study of epigenetic regulation, including structural, biochemical, molecular, biological, cellular, computational, and systems approaches. Topics include chromatin structure and histones, posttranslational histone modification enzymes and complexes, histone modification binders, DNA modifications and nucleic acid regulators, epigenetic technologies, and small molecule epigenetic regulators and biological connections. Continues the legacy of this premier serial with quality chapters authored by leaders in the field Contains two new volumes that cover research methods in enzymes of epigenetics Covers such topics as chromatin structure and histones, posttranslational histone modification enzymes and complexes, histone modification binders, DNA modifications and nucleic acid regulators, epigenetic technologies and small molecule epigenetic regulators, and biological connections

Simultaneous Statistical Inference

This book summarizes the various microfluidic-based approaches for single-cell capture, isolation, manipulation, culture and observation, lysis, and analysis. Single-cell analysis reveals the heterogeneities in morphology, functions, composition, and genetic performance of seemingly identical cells, and advances in single-cell analysis can overcome the difficulties arising due to cell heterogeneity in the diagnostics for a targeted model of disease. This book provides a detailed review of the state-of-the-art techniques presenting the pros and cons of each of these methods. It also offers lessons learned and tips from front-line investigators to help researchers overcome bottlenecks in their own studies. Highlighting a number of techniques, such as microfluidic droplet techniques, combined microfluidics-mass-spectrometry systems, and nanochannel sampling, it describes in detail a new microfluidic chip-based live single-cell extractor (LSCE) developed in the editor’s laboratory, which opens up new avenues to use open microfluidics in single-cell extraction, single-cell mass spectrometric

analysis, single-cell adhesion analysis and subcellular operations. Serving as both an elementary introduction and advanced guidebook, this book interests and inspires scholars and students who are currently studying or wish to study microfluidics-based cell analysis methods.

Expect to Win

Using the well-honed tools of nanotechnology, this book presents breakthrough results in soft matter research, benefitting from the synergies between the chemistry, physics, biology, materials science, and engineering communities. The team of international authors delves beyond mere structure-making and places the emphasis firmly on imparting functionality to soft nanomaterials with a focus on devices and applications. Alongside reviewing the current level of knowledge, they also put forward novel ideas to foster research and development in such expanding fields as nanobiotechnology and nanomedicine. As such, the book covers DNA-induced nanoparticle assembly, nanostructured substrates for circulating tumor cell capturing, and organic nano field effect transistors, as well as advanced dynamic gels and self-healing electronic nanodevices. With its interdisciplinary approach this book gives readers a complete picture of nanotechnology with soft matter.

Water in Biomaterials Surface Science

New nanomaterials are leading to a range of emerging dental treatments that utilize more biomimetic materials that more closely duplicate natural tooth structure (or bone, in the case of implants). The use of nanostructures that will work in harmony with the body’s own regenerative processes (eg, to restore tooth structure or alveolar bone) are moving into clinical practice. This book brings together an international team of experts from the fields of nanomaterials, biomedical engineering and dentistry, to cover the new materials and techniques with potential for use intra-orally or extra-orally for the restoration, fixation, replacement, or regeneration of hard and soft tissues in and about the oral cavity and craniofacial region. New dental nanotechnologies include the use of advanced inorganic and organic materials, smart and biomimetic materials, tissue engineering and drug delivery strategies. Book prepared by an interdisciplinary and international group of bio-nanomaterial scientists and dental/oral biomedical researchers Comprehensive professional reference for the subject covering materials fabrication and use of materials for all major diagnostic and therapeutic dental applications – repair,restoration, regeneration, implants and prevention Book focuses in depth on the materials manufacturing processes involved with emphasis on pre-clinical and clinical applications, use and biocompatibility

Isotachophoresis

PREFACE The Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture is involved in agricultural research and development and assists Member States of FAO and IAEA in improving strategies to ensure food security through the use of nuclear techniques and related biotechnologies, where such techniques have a valuable and often unique role. In particular, molecular diagnostic methods have rapidly evolved in the past twenty years, since the advent of the Polymerase Chain Reaction (PCR). They are used in a wide range of agricultural areas such as, improving soil and water management; producing better crop varieties; diagnosing plant and animal diseases; controlling insect pests and improving food quality and safety. The uses of nucleic acid-directed methods have increased significantly in the past five years and have made important contributions to disease control country programmes for improving national and international trade. These developments include the more routine use of PCR as a diagnostic tool in veterinary diagnostic laboratories. However, there are many problems associated with the transfer and particularly, the application of this technology. These include lack of consideration of: the establishment of quality-assured procedures, the required set-up of the laboratory and the proper training of staff. This can lead to a situation where results are not assured. This book gives a comprehensive account of the practical aspects of PCR and strong consideration is given to ensure its optimal use in a laboratory environment. This includes the setting-up of a PCR laboratory; Good Laboratory Practice and standardised of PCR protocols.

NMR for Liquid Fossil Fuels

Physiological Systems in Insects discusses the roles of molecular biology, neuroendocrinology, biochemistry, and genetics in our understanding of insects. All chapters in the new edition are updated, with major revisions to those covering swiftly evolving areas like endocrine, developmental, behavioral, and nervous systems. The new edition includes the latest details from the literature on hormone receptors, behavioral genetics, insect genomics, neural integration, and much more. Organized according to insect physiological functions, this book is fully updated with the latest and foundational research that has influenced understanding of the patterns and processes of insects and is a valuable addition to the collection of any researcher or student working with insects. There are about 10 quintillion insects in the world divided into more than one million known species, and some scientists believe there may be more than 30 million species. As the largest living group on earth, insects can provide us with insight into adaptation, evolution, and survival. The internationally respected third edition of Marc Klowden's standard reference for entomologists and researchers and textbook for insect physiology courses provides the most comprehensive analysis of the systems that make insects important contributors to our environment. Third edition has been updated with new information in almost every chapter and new figures Includes an extensive up-to-date bibliography in each chapter Provides a glossary of common entomological and physiological terms

Peptide and Protein Drug Delivery

The volume covers the preparation and analysis of model systems for biological electron microscopy. The volume has chapters about prokaryotic as well as eukaryotic systems that are used as so-called model organisms in modern cell biology. These systems include the most popular systems, such as budding and fission yeast, the roundworm C. elegans, the fly Drosophila, zebrafish, mouse, and Arabidopsis, but also organisms that are less frequently used in cell biology, such as Chlamydomonas, Dictyostelium, Trypanosoma, faltworms, Axolotl and others. In addition, tissues and tissue culture systems are also covered. These systems are used for very diverse areas of cell biology, such as cell division, abscission, intracellular transport, cytoskeletal organization, tissue regeneration and others. Moreover, this issue presents the currently most important methods for the preparation of biological specimens. This volume, however, is not a classic EM methods book. The methods are not the main focus of this issue. The main goal here is to cover the methods in the context of the specific requirements of specimen preparation for each model organism or systems. This will be the first compendium covering the various aspects of sample preparation of very diverse biological systems. Covers the preparation and analysis of model systems for biological electron microscopy Includes the most popular systems but also organisms that are less frequently used in cell biology Presents the currently most important methods for the preparation of biological specimens First compendium covering the various aspects of sample preparation of very diverse biological systems

CRISPR-Cas Enzymes

This volume presents state-of-the-art protocols for key experiments that have revolutionized our understanding of the bacterial nucleoid. This book is divided into five parts: Part I introduces molecular genetic methods to study bacterial nucleoids; Part II highlights the study of bacterial nucleoid with whole genome analysis method; Part III discusses molecular biology methods to study nucleoid structuring factors; Part IV looks at imaging bacterial nucleoid; and Part V explores biophysics of the bacterial nucleoid. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Thorough and cutting-edge, The Bacterial Nucleoid: Methods and Protocols is a valuable resource that provides a wealth of new information about this chromosome.

Exon Skipping and Inclusion Therapies

Isotachophoresis

Methods in Membrane Lipids

From 1965 through 1975, I conducted an extensive field and laboratory research project on thermophilic microorganisms. The field work was based primarily in Yellowstone National Park, using a field laboratory we set up in the city of W. Yellowstone, Montana. The laboratory work was carried out from 1965 through 1971 at Indiana University, Bloomington, and subsequently at the University of Wisconsin, Madison. Although this research project began small, it quickly ramified in a wide variety of directions. The major thrust was an attempt to understand the ecology and evolutionary relationships of thermophilic microorganisms, but research also was done on biochemical, physiologic, and taxonomic aspects of thermophiles. Four new genera of thermophilic microorganisms have been discovered during the course of this 10-year period, three in my laboratory. In addition, a large amount of new information has been obtained on some thermophilic microorganisms that previously had been known. In later years, a considerable amount of work was done on Yellowstone algal bacterial mats as models for Precambrian stromatolites. In the broadest sense, the work could be considered geomicrobiological, or biogeochemi cal, and despite the extensive laboratory research carried out, the work was always firmly rooted in an attempt to understand thermophilic microorga nisms in their natural environments. Indeed, one of the prime motivations for initiating this work was a view that extreme environments would provide useful models for studying the ecology of microorganisms. As a result of this 10-year research project, I published over 100 papers.

Enzymes of Epigenetics

This advanced level textbook provides a comprehensive overview of recent developments in the area of molecular based diagnostics (including nucleic acids, biosensors and immunoessays) of disease markers. It also covers the impact of techniques such as in vitro nucleic acid amplifications (e.g. PCR) and other amplification methods, as well as gene and biochip production and automated techniques such as fluorescent sequencing. The book discusses key concepts where new and merging areas, including pharmacogenomics, proteomics and functional genomics, are being researched and developed. In addition, examples are given where this new area of bioscience has or may be successfully applied.

Molecular Diagnostic PCR Handbook

This book provides a concise set of protocols for assessing basic neutrophil functions, investigating specialized areas in neutrophil research, and completing step-by-step diagnostic assays of common neutrophil disorders. Each of the protocols is written by leading researchers in the field and includes hints for success, as well as guidance for troubleshooting. Scientists and clinicians will find this collection an invaluable aid.

Skeletal Development and Repair

This volume explores numerous techniques for the genetic, molecular, biochemical, and structural examination of BCL-2 family proteins and their interactions. The chapters in this book cover topics such as the relevance of BCL-2 proteins in health and disease; evaluating cellular dependencies to specific BCL-2 family proteins; flow-cytometry-based methods for measuring BCL-2 proteins and mitochondrial-based cell death; measuring activity and interactions of BCL-2 family proteins in the presence of mitochondria, artificial membranes or yeast; conformational activation and oligomerization of pro-apoptotic proteins BAX and BAK leading to cytochrome c release and apoptosis; structural and biophysical studies in solution and lipid vesicles using nuclear magnetic resonance, cryo-electron microscopy, fluorescence microscopy and electron paramagnetic resonance. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Cutting-edge and thorough, BCL-2 Family Proteins: Methods and Protocols is a valuable resource to inspire and encourage novice and established scientists to further their research and make new discoveries in this exciting field.

Microfluidic Diagnostics

This monograph will provide an in-depth mathematical treatment of modern multiple test procedures controlling the false discovery rate (FDR) and related error measures, particularly addressing applications to fields such as genetics, proteomics, neuroscience and general biology. The book will also include a detailed description how to implement these methods in practice. Moreover new developments focusing on non-standard assumptions are also included, especially multiple tests for discrete data. The book primarily addresses researchers and practitioners but will also be beneficial for graduate students.

Microfluidics for Single-Cell Analysis

Electrokinetics is currently the mechanism of choice for fluid actuation and bioparticle manipulation at microscale and nanoscale dimensions. There has recently been widespread interest in the use of AC electric fields, given the many advantages it offers over DC electrokinetics. Nevertheless, a fundamental understanding of the governing mechanisms underlying the complex and nonlinear physicochemical hydrodynamics associated with these systems is required before practical microfluidic and nanofluidic devices can be engineered. This text aims to provide a comprehensive treatise on both classical equilibrium electrokinetic phenomena as well as the more recent non-equilibrium phenomena associated with both DC and AC electrokinetics in the context of their application to the design of microfluidic and nanofluidic technology. In particular, Leslie Yeo and Hsueh-Chia Chang discuss the linear and nonlinear theories underlying electroosmosis, electrophoresis, and dielectrophoresis pertaining to electrolytes as well as dielectric systems. Interfacial electrokinetic phenomena such as electrospraying, electrospinning, and electrowetting are also discussed.

Microdroplet Technology

Do you need a fun illustrated material to get your kids engaged? Follow the father and son bear pair on their journey to the forest to find honey. Empowering and perfect for kids 3 to 7 years old, this book is written to share the beauty of animals through a young bear's adventures. Great bedtime story. "Father and Son, Honey Hunt Has Begun" is a must-have resource and children novel for every young reader and their parents. This joke book for kids provides many hours of fun and laughter. Packed full of colorful illustrations, this book helps children learn fundamental concepts such as reading and color identification. This children book is not only written to make your kids laugh, it is crafted to help them practice word recognition and enhance their cognitive skills. As an adult, this illustrated book for toddlers is also an exquisite gift item you can buy for birthdays, Christmas and other occasions. Kids learn best while having fun. Whether you have a reluctant reader or budding booklover, this book is sure to capture the imagination of any under-5 and it's totally unputdownable. Scroll up and click the "Buy Now" bottom to get this entire book right now!

Single-Molecule Enzymology: Fluorescence-Based and High-Throughput Methods

Microfluidic techniques are becoming widely incorporated into medical diagnostic systems due to the inherent advantages of miniaturization. In Microfluidic Diagnostics: Methods in Molecular Biology, researchers in the field detail methods and protocols covering subjects such as microfluidic device fabrication, on-chip sample preparation, diagnostic applications and detection methodologies. The protocols described range from cutting-edge developments to established techniques and basic demonstrations suitable for education and training; from basic fabrication methods to commercializing research. Written in the highly successful Methods in Molecular BiologyTM series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and key tips on troubleshooting and avoiding known pitfalls. Authoritative and practical, Microfluidic Diagnostics: Methods in Molecular Biology seeks to aid scientists in the further development and commercialization of microfluidic diagnostic technologies

Neutrophil Methods and Protocols

This reference/text covers fundamentals of peptide and protein drug delivery, including such considerations as synthesis, physical chemistry and biochemistry, analysis, proteolytic and transport constraints, pharmacokinetics, and pharmacodynamics; bioavailability from routes of administration, detai

Hepatitis C Viruses

Featuring contributions from eminent immunologists, microbial geneticists, and cell and molecular biologists, this single volume brings together a current understanding of how phagocytes recognize and respond to potentially pathogenic microbes. It explores and explains the complex biology underlying the different phagocyte lineages that enables them to sense and respond to their environments. Several chapters in this volume review the properties and functions of the phagosome itself, which are intimately linked to the diverse roles it fulfills in the mechanisms of phagocytosis and host respons

Electrokinetically-Driven Microfluidics and Nanofluidics

This volume expands upon the previous edition with current, detailed protocols for investigating membranes and their component lipids in artificial membranes, cells, and in silico. Chapters focus on properties of the component lipids, membranes and their biophysical properties, fluorescent probes for studying membranes, sample preparation, physical techniques to study membrane composition, properties , and function, behavior of cholesterol within a bilayer and examination of cholesterol-dependent phase separation. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and practical, Methods in Membrane Lipids, Second Edition seeks to aid scientist in further study into membrane lipids.

Phagocyte-pathogen Interactions

CRISPR-Cas Enzymes, Volume 616, the latest release in the Methods in Enzymology series, continues the legacy of this premier serial with quality chapters authored by leaders in the field. Topics covered in this release include CRISPR bioinformatics, A method for one-step assembly of Class 2 CRISPR arrays, Biochemical reconstitution and structural analysis of ribonucleoprotein complexes in Type I-E CRISPR-Cas systems, Mechanistic dissection of the CRISPR interference pathway in Type I-E CRISPR-Cas system, Site-specific fluorescent labeling of individual proteins within CRISPR complexes, Fluorescence-based methods for measuring target interference by CRISPR-Cas systems, Native State Structural Characterization of CRISRP Associated Complexes using Mass Spectrometry, and more. Provides the authority and expertise of leading contributors from an international board of authors Presents the latest release in the Methods in Enzymology series Updated release includes the latest information on the CRISPR-Cas Enzymes

The Nucleolus

Yeast Genetics: Methods and Protocols is a collection of methods to best study and manipulate Saccharomyces cerevisiae, a

truly genetic powerhouse. The simple nature of a single cell eukaryotic organism, the relative ease of manipulating its genome and the ability to interchangeably exist in both haploid and diploid states have always made it an attractive model organism. Genes can be deleted, mutated, engineered and tagged at will. Saccharomyces cerevisiae has played a major role in the elucidation of multiple conserved cellular processes including MAP kinase signaling, splicing, transcription and many others. Written in the successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible protocols and notes on troubleshooting and avoiding known pitfalls. Authoritative and easily accessible, Yeast Genetics: Methods and Protocols will provide a balanced blend of classic and more modern genetic methods relevant to a wide range of research areas and should be widely used as a reference in yeast labs.

Bioluminescence

Now fully updated and considerably expanded, Glycoanalysis Protocols, 2nd ed., makes available to all protein scientists, and particularly those working with today's pharmaceuticals, the most advanced and reproducible glycoanalysis techniques currently in use. Developed by highly experienced carbohydrate chemists, biochemists, and physical chemists, these detailed, up-to-date, and proven analytical techniques cover the areas of glycoprotein macromolecular structural analysis, oligosaccharide profiling, lipid conjugate characterization, microorganism structure determination, and proteoglycan function. Special attention has been given to advanced analytical techniques in biotechnology during the production of recombinant glycoproteins and other therapeutics. Hailed as indispensable in its first edition, Glycoanalysis Protocols, 2nd ed., continues with vital, time-tested techniques addressing the needs of both biomedical researchers and protein macromolecular structural chemists. It will well serve all those starting work on the analysis of glycoproteins, as well as more experienced investigators seeking to augment their expertise.

Glycoanalysis Protocols

This thesis reports on the development of a fully integrated and automated microsystem consisting of low-cost, disposable plastic chips for DNA extraction and PCR amplification, combined with a reusable glass capillary array electrophoresis chip, which can be employed in a modular-based format for genetic analysis. In the thesis, DNA extraction is performed by adopting a filter paper-based method, followed by an “in-situ” PCR carried out directly in the same reaction chamber of the chip without elution. PCR products are then co-injected with sizing standards into separation channels for detection using a novel injection electrode. The entire process is automatically carried out by a custom-made compact control and detection instrument. The author thoroughly tests the system’s performance and reliability by conducting rapid genetic screening of mutations on congenital hearing loss and pharmacogenetic typing of multiple warfarin-related single-nucleotide

polymorphisms. The successful development and operation of this microsystem establishes the feasibility of rapid “sample-in-answer-out” testing in routine clinical practice.

Fibrosis

A business autobiography outlining Monty Holm¿s path to success in the financial industry.

Insect Immunology

Chapter 39 FTIR Microscopy -- 39.1 Principles of the Analytical Method -- 39.2 Sampling and Analytical Procedure -- 39.3 Archaeological Applications -- References -- Chapter 40 X-ray Microdiffraction -- 40.1 Fundamentals of X-ray Diffraction -- 40.2 XRD Instrumentation -- 40.3 Output and Analysis -- 40.4 Applications to Archaeological Micromorphology Samples -- 40.5 Concluding Remarks -- References -- Chapter 41 Micro XRF -- 41.1 Principles of the Analytical Method -- 41.2 Sampling and Analytical Procedure -- 41.3 Archaeological Applications -- 41.4 Concluding Remarks -- References -- Chapter 42 Micro-CT Scanning -- 42.1 Principles of the Analytical Method -- 42.2 Sampling and Analytical Procedures -- 42.3 Archaeological Applications -- 42.4 Concluding Remarks -- References -- Chapter 43 Electron Probe X-ray Microanalysis (SEM-EPMA) Techniques -- 43.1 Principles of the Techniques -- 43.2 Sample Preparation and Analysis -- 43.3 Archaeological Applications -- References -- 44 Reflected Light -- 44.1 Principles of the Analytical Method -- 44.2 Sampling and Analytical Procedure -- 44.3 Archaeological Applications -- References -- Index -- EULA

Physiological Systems in Insects

Development of a Fully Integrated “Sample-In-Answer-Out” System for Automatic Genetic Analysis

This volume provides an up-to-date compilation of current methodological approaches utilized for the exploration of nucleolar structure and function. Chapters cover a diversity of protocols that include imaging of the nucleolus, analysis of ribosomal RNA transcription and processing, and genomics and proteomics of the nucleolus. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and practical, The Nucleolus: Methods and Protocols provides scientists with a reliable practical handbook to facilitate the investigation of this nuclear compartment at the advanced level.

Electron Microscopy of Model Systems

Microdroplet technology has recently emerged to provide new and diverse applications via microfluidic functionality, especially in various areas of biology and chemistry. This book, then, gives an overview of the principle components and wide-ranging applications for state-of-the-art of droplet-based microfluidics. Chapter authors are internationally-leading researchers from chemistry, biology, physics and engineering that present various key aspects of micrdroplet technology -- fundamental flow physics, methodology and components for flow control, applications in biology and chemistry, and a discussion of future perspectives. This book acts as a reference for academics, post-graduate students, and researcher wishing to deepen their understand of microfluidics and introduce optimal design and operation of new droplet-based microfluidic devices for more comprehensive analyte assessments.

Emerging Nanotechnologies in Dentistry

This third edition of the Encyclopedia of Spectroscopy and Spectrometry provides authoritative and comprehensive coverage of all aspects of spectroscopy and closely related subjects that use the same fundamental principles, including mass spectrometry, imaging techniques and applications. It includes the history, theoretical background, details of instrumentation and technology, and current applications of the key areas of spectroscopy. The new edition will include over 80 new articles across the field. These will complement those from the previous edition, which have been brought up-to-date to reflect the latest trends in the field. Coverage in the third edition includes: Atomic spectroscopy Electronic spectroscopy Fundamentals in spectroscopy High-Energy spectroscopy Magnetic resonance Mass spectrometry Spatially-resolved spectroscopic analysis Vibrational, rotational and Raman spectroscopies The new edition is aimed at professional scientists seeking to familiarize themselves with particular topics quickly and easily. This major reference work continues to be clear and accessible and focus on the fundamental principles, techniques and applications of spectroscopy and spectrometry. Incorporates more than 150 color figures, 5,000 references, and 300 articles for a thorough examination of the field Highlights new research and promotes innovation in applied areas ranging from food science and forensics to biomedicine and health Presents a one-stop resource for quick access to answers and an in-depth examination of topics in the spectroscopy and spectrometry arenas

Yeast Genetics

This new edition explores current and emerging mutagenesis methods focusing specifically on mammalian systems and commonly used model organisms through comprehensive coverage and detailed protocols. Since the first edition, major advances and discoveries have made chromosomal mutagenesis a widely used technique and one that is available to any

molecular biology laboratory, and this collection provides detailed protocols, case-studies, and reviews from thought-leaders in the field. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and fully updated, Chromosomal Mutagenesis, Second Edition aims to help speed scientific discovery and aid in the next advances in the field.

BCL-2 Family Proteins

This volume describes state-of-the-art protocols that serve as “recipes” for scientists concentrating on fibrosis research. This book is divided into four sections. Part I focuses on animal models of fibrosis and covers topics such as mimicking fibrosis in the lungs, skin, liver and heart, and generating transgenic mouse models. Part II discusses cell culture systems, where the chapters explore cell types important for the development of fibrosis. Part III looks at the purification, quantification, and analysis of the ECM proteins, and Part IV describes computer-assisted methods such as quantifying fibrillar collagen alignment and exploring the nano-surface of collagen with atomic force microscopy (AFM). Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Cutting-edge and practical, Fibrosis: Methods and Protocols is a valuable resource aimed at outstanding quality and repeatability of research experiments in the fibrosis field.

Molecular Analysis and Genome Discovery

Single-Molecule Enzymology, Part A, the latest volume in the Methods in Enzymology series, continues the legacy of this premier serial with quality chapters authored by leaders in the field. This volume covers research methods in single-molecule enzymology, and includes sections on such topics as force-based and hybrid approaches, fluorescence, high-throughput sm enzymology, nanopores, and tethered particle motion. Continues the legacy of this premier serial with quality chapters authored by leaders in the field Covers research methods in single-molecule enzymology Contains sections on such topics as force-based and hybrid approaches, fluorescence, high-throughput sm enzymology, nanopores, and tethered particle motion

Thermometry at the Nanoscale

High resolution nuclear magnetic resonance (NMR) of liquid fuels has provided valuable information on the molecular structures present in these fuels. The chemical insight gained through NMR studies has the potential to enhance

significantly the development of processes for the utilization of fossil energy. For this potential to be fully realized, users of NMR information must be able to communicate effectively with NMR experts. Conversely, NMR experts must understand the type of information that users will attempt to derive from their spectra. The goal of this book is to strengthen the lines of communication between NMR experts and users in the area of NMR of liquid fuels. The book comprises two parts. The first part presents elements of relevant NMR phenomenology, including a definition of the most important NMR parameters, an introduction to Fourier transform NMR and a discussion of newer pulse techniques. Sufficient background material is presented to enable the reader to follow such techniques as spin echo, two-dimensional and polarization transfer experiments. These techniques are illustrated by extensive examples derived from fuel chemistry. The second part of the book addresses the interpretation of NMR spectra and is based, to a very large extent, on the work of the authors who have used NMR in a variety of applications in fossil fuels. This part describes in detail the three basic methods for interpreting NMR spectra of liquid fuels: average structural parameter calculations, average molecule construction and functional group analysis. The use of NMR in engineering calculations is also presented and should be particularly useful to those interested in processing of fossil fuels. Extensive examples are drawn from petroleum, shale oils, coal liquids and model systems. Computer programs for performing the characterizations from the spectra are provided. The book will appeal to a wide range of professionals. With its emphasis on applications, it will be of particular interest to those who use NMR to characterize liquid fossil fuels or those who provide NMR assistance to fossil fuel scientists and technologists.

Thermophilic Microorganisms and Life at High Temperatures

This work is the first book-length publication on the topic of insect immunology since 1991, complementing earlier works by offering a fresh perspective on current research. Interactions of host immune systems with both parasites and pathogens are presented in detail, as well as the genomics and proteomics, approaches which have been lacking in other publications. Beckage provides comprehensive coverage of topics important to medical researchers, including Drosophila as a model for studying cellular and humoral immune mechanisms, biochemical mediators of immunity, and insect blood cells and their functions. Encompasses the most important topics of insect immunology including mechanisms, genes, proteins, evolution and phylogeny Provides comprehensive coverage of topics important to medical researchers including Drosophila as a model for studying cellular and humoral immune mechanisms, biochemical mediators of immunity, and insect blood cells and their functions Most up-to-date information published with contributions from international leaders in the field

Soft Matter Nanotechnology

Skeletal Development and Repair: Methods and Protocols is a compilation of a variety of skeletal research protocols utilizing the laboratory mouse as the platform for surgical manipulation and/or transplantation as well as the source of tissues and

cells for in vitro culture and analyses. Chapters are written by experts in the field and cover topics including surgical, transplantation and organ culture methods that permit analyses of skeletal tissues undergoing repair in vivo and permits analyses of cellular interactions ex vivo, histological and molecular techniques developed to study gene and protein expression in whole embryos, skeletal tissues and tissue sections and in vitro primary cell culture protocols designed to assay gene function in specific cell populations. Written in the successful Methods in Molecular Biology series format chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible protocols and notes on troubleshooting and avoiding known pitfalls. Authoritative and easily accessible, Skeletal Development and Repair: Methods and Protocols is a comprehensive laboratory manual for all levels of basic research scientists working in the broad fields of skeletal development and skeletal repair research.

The Bacterial Nucleoid

This book presents a comprehensive collection of detailed state-of-the-art exon skipping and splices modulation protocols. Chapters detail 14 genetic diseases, AON-mediated therapies, and CRISPR/Cas9-mediated gene editing therapies. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, Exon Skipping and Inclusion Therapies: Methods and Protocols aims to help researchers initiate the development of next-generation therapies.

Father and Son, Honey Hunt Has Begun!

This volume presents detailed laboratory protocols regarding the three major route technologies luciferases, efficient optical probes, and applications to visualizing molecular events in living subjects. Bioluminescence: Methods and Protocols, Third Edition guides readers through chapters on ingredients of bioluminescent probes, and fabrication of bioluminescent probes, applications to living subjects and instrumentations. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and practical, Bioluminescence: Methods and Protocols, Third Edition is a useful complement to the first and second edition for new and experienced researchers alike.