

Macrophages And Dendritic Cells Methods And Protocols

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Cellular Immunology LabFax - 2014-05-19

LABFAX volumes are purpose-designed data reference books for practicing scientists. Each book presents the key information for a major subject in one place and so saves hours of searching. The authors and editors of each LABFAX volume have searched the original literature for the accurate data they know the subject specialist needs. Cellular Immunology Labfax is a detailed compendium of information on the tissues and cells of the immune system, cell lines and hybridomas, antigens and receptors, the major histocompatibility complex, soluble immunoregulatory molecules, in vivo procedures, important features of species used in immunological research, and much more. The contents of Cellular Immunology Labfax have been carefully chosen to complement the data presented in Immunochemistry Labfax. It is therefore the companion volume to this text.

Immunophenotyping - J. Philip McCoy, Jr 2020-09-15

This volume presents the latest collection of immunophenotypic techniques and applications used in research and clinical settings. Chapters in this book cover topics such as constructions of high dimensions fluorescence and mass cytometry panels; fluorescence barcoding; using dried or lyophilized reagents; and immunophenotypic examples of specific cell types. The book concludes with a discussion on the critical roles of quality control and immunophenotyping in the clinical environment. 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 comprehensive, *Immunophenotyping: Methods and Protocols* is a valuable resource for any researchers, clinician, or scientist interested in learning more about this evolving field.

Lung Innate Immunity and Inflammation - Scott Alper 2018

Composite Tissue Allograft - Hakim Nadey S 2006-05-05

The first textbook of its kind dealing with composite tissue allograft and allograft transplantation, provides an excellent overview on the subject. It provides a clear description of the current status of the transplant of every composite tissue allograft already performed and others which are still at the basic experimental level. The editors of the book, who also contribute chapters in their expertise, are world renowned surgeons. This book opens with an introductory chapter on the history of this type of transplantation and then details the clinical experience in each graft such as hand, larynx, face, uterus and the related histopathology, immunosuppression and immunomodulation. A multidisciplinary and comprehensive presentation of the various aspects of this new area of transplantation will allow the reader to understand the complexity and the challenges of composite tissue transplantation. A number of important topics are analyzed and discussed in detail, such as the ethical, medicolegal, psychological and immunological implications. New rehabilitation techniques and strategies, together with innovative tools for the functional evaluation of the transplanted parts, are highlighted. A section on the experimental work underlines what lies ahead of us. /a

Laboratory Protocols in Applied Life Sciences - Prakash Singh Bisen 2014-02-26

As applied life science progresses, becoming fully integrated into the biological, chemical, and engineering sciences, there is a growing need for expanding life sciences research techniques. Anticipating the

demands of various life science disciplines, *Laboratory Protocols in Applied Life Sciences* explores this development. This book covers a wide spectrum of areas in the interdisciplinary fields of life sciences, pharmacy, medical and paramedical sciences, and biotechnology. It examines the principles, concepts, and every aspect of applicable techniques in these areas. Covering elementary concepts to advanced research techniques, the text analyzes data through experimentation and explains the theory behind each exercise. It presents each experiment with an introduction to the topic, concise objectives, and a list of necessary materials and reagents, and introduces step-by-step, readily feasible laboratory protocols. Focusing on the chemical characteristics of enzymes, metabolic processes, product and raw materials, and on the basic mechanisms and analytical techniques involved in life science technological transformations, this text provides information on the biological characteristics of living cells of different origin and the development of new life forms by genetic engineering techniques. It also examines product development using biological systems, including pharmaceutical, food, and beverage industries. *Laboratory Protocols in Applied Life Sciences* presents a nonmathematical account of the underlying principles of a variety of experimental techniques in disciplines, including: Biotechnology Analytical biochemistry Clinical biochemistry Biophysics Molecular biology Genetic engineering Bioprocess technology Industrial processes Animal Plant Microbial biology Computational biology Biosensors Each chapter is self-contained and written in a style that helps students progress from basic to advanced techniques, and eventually design and execute their own experiments in a given field of biology.

Nanotoxicology - Vineet Kumar 2018-03-12

As the application of nanotechnology in the myriad disciplines of science and engineering--from agriculture, pharmaceuticals, material science, and biotechnology to sensors, electronics, and mechanical and electrical engineering--brings benefits it also can produce serious threats to human health and the environment that must be evaluated. The unique properties of nanomaterials make them different from their bulk counterparts. In addition to such unique properties, the nanometric size of nanomaterials can invite some detrimental effects on the health and well-being of living organisms and the environment. Thus, it is important to distinguish nanomaterials with such ill effects from nanomaterials with no or minimum toxicity. *Nanotoxicology: Toxicity Evaluation, Risk Assessment and Management* covers issues such as the basic principles of nanotoxicity, methods used for nanotoxicity evaluation, risk assessment and its management for nanomaterial toxicity with a focus on current trends, limitations, challenges, and future directions of nanotoxicity evaluation. Various experts from different countries discuss these issues in detail in this book. This will be helpful to researchers, educators, and students who are interested in research opportunities for avoiding the environmental and health hazards of nanomaterials. This book will also be useful for industrial practitioners, policy makers, and other professionals in the fields of toxicology, medicine, pharmacology, food, drugs, and other regulatory sciences.

Alcohol - Laura E. Nagy 2008-03-07

This book examines the pleiotropic effects of ethanol in animal and cell culture models through a collection of detailed procedures written by experts in the field. Sections present clearly defined models of ethanol exposure, recent advances in the development of specific methodologies to mimic the impact of ethanol metabolism in cultured cells, and methodologies to investigate a variety of cells and tissues that are known

to be disrupted by ethanol, amongst other topics.

Monocyte Heterogeneity and Function - Pierre Guermonprez 2021-02-11

The Impact of Food Bioactives on Health - Kitty Verhoeckx 2015-04-29

"Infogest" (Improving Health Properties of Food by Sharing our Knowledge on the Digestive Process) is an EU COST action/network in the domain of Food and Agriculture that will last for 4 years from April 4, 2011. Infogest aims at building an open international network of institutes undertaking multidisciplinary basic research on food digestion gathering scientists from different origins (food scientists, gut physiologists, nutritionists...). The network gathers 70 partners from academia, corresponding to a total of 29 countries. The three main scientific goals are: Identify the beneficial food components released in the gut during digestion; Support the effect of beneficial food components on human health; Promote harmonization of currently used digestion models. Infogest meetings highlighted the need for a publication that would provide researchers with an insight into the advantages and disadvantages associated with the use of respective in vitro and ex vivo assays to evaluate the effects of foods and food bioactives on health. Such assays are particularly important in situations where a large number of foods/bioactives need to be screened rapidly and in a cost effective manner in order to ultimately identify lead foods/bioactives that can be the subject of in vivo assays. The book is an asset to researchers wishing to study the health benefits of their foods and food bioactives of interest and highlights which in vitro/ex vivo assays are of greatest relevance to their goals, what sort of outputs/data can be generated and, as noted above, highlight the strengths and weaknesses of the various assays. It is also an important resource for undergraduate students in the 'food and health' arena.

Aging Methods and Protocols - Yvonne A. Barnett 2000

With rapidly rising life expectancies and a general lack of understanding about the aging process, the need to treat geriatric diseases is becoming an ever more significant private and public health issue. In *Aging Methods and Protocols*, Yvonne and Christopher Barnett and a team of recognized international experts detail key biochemical, analytical, and molecular techniques for the investigation of aging at the cellular, tissue, organ, and whole system levels. These cutting-edge methods address a wide range of research needs, from uncovering the factors associated with cell senescence and death, to exploring alterations in the body's ability both to metabolize xenobiotics, and to defend itself against biomolecular damage. State-of-the-art protocols also measure the morphological, functional, and molecular changes that accumulate within mitochondria over time, and permit the genetic and functional characteristics of the immune system to be determined. Two important case studies examine the role of dietary restriction on life span extension and the use of transgenic animals in the molecular analysis of aging. Wide ranging and highly practical, *Aging Methods and Protocols* provides today's molecular gerontologists, pharmacologists, and clinical investigators with a gold-standard collection of readily reproducible techniques for identifying those key cellular and molecular processes that might one day make it possible to regulate the aging process.

Peptide Antibodies - Gunnar Houen 2016-08-23

This extensive volume covers basic and advanced aspects of peptide antibody production, characterization and uses. Although peptide antibodies have been available for many years, they continue to be a field of active research and method development. For example, peptide antibodies which are dependent on specific posttranslational modifications are of great interest, such as phosphorylation, citrullination and others, while different forms of recombinant peptide antibodies are gaining interest, notably nanobodies, single chain antibodies, TCR-like antibodies, among others. Within this volume, those areas are covered, as well as several technical and scientific advances: solid phase peptide synthesis, peptide carrier conjugation and immunization, genomics, transcriptomics, proteomics and elucidation of the molecular basis of antigen presentation and recognition by dendritic cells, macrophages, B cells and T cells. 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. Comprehensive and authoritative, *Peptide Antibodies: Methods and Protocols* serves as an ideal reference for researchers exploring this vital and expansive area of study.

Handbook of ELISPOT - Alexander E. Kalyuzhny 2008-02-02

In this first book dedicated entirely to the ELISPOT, a critical enzyme-linked immunospot assay used widely in biomedical research, recognized experts with first-hand experience detail how to design, perform, and analyze these assays. The readily reproducible techniques they provide cover a wide variety of topics, including the use of membrane-backed plates, the standardization and validation procedures, the removal of cells from ELISPOT plates, cell separation techniques, and the quantification of ELISPOT data. There are also numerous ELISPOT applications involving animal models, human cells, measles, multiple sclerosis, immune responses, multicytokine detection systems, and immunocytochemistry. Highlights include dual-color and multiplex ELISPOT assays, use of the ELISPOT assay on feline lymphocytes, standardization of the ELISPOT procedure, and combining the ELISPOT assay with immunohistochemistry.

Cancer Cell Culture - Simon P. Langdon 2004

This volume describes easy to follow methods to guide both the novice and more experienced researcher seeking to use new techniques for the culture of cancer cells. The first section of the book introduces the rationale behind the selection of specific materials to help the reader choose culture conditions appropriate to their studies and the general techniques operating in many culture facilities. The second section covers the specific requirements of the individual cancer cell types for optimal growth and maintenance. A wide range of procedures encompassing many of the key functional features of cancer cells are then described in section three. These include assays to evaluate proliferation, viability, cytotoxicity, apoptosis, migration, invasion, and angiogenesis. Techniques of gene transfer and the development of drug resistance are also described. Finally the book concludes with methods of co-culture of different cell types.

Nanotoxicity - Saura C. Sahu 2009-08-04

Nanomaterials - substances smaller than 100 nanometers in size - have been added in recent years to an increasing numbers of consumer products used in day-to-day life; in food packaging, medical devices, pharmaceuticals, cosmetics, odor-resistant textiles and household appliances. The extensive application of nanomaterials in a wide range of products for human use poses a potential for toxicity risk to human health and the environment. Such adverse effects of nanomaterials on human health have triggered the development of a new scientific discipline known as "nanotoxicity" - the study of the toxicity of nanomaterials. *Nanotoxicity: From in vivo and in vitro Models to Health Risks* provides up-to-date state-of-the-art information presented by recognized experts in this emerging new field in toxicology. It discusses the safety evaluation of nanomaterials in foods, drugs, medical devices, cosmetics and other regulated products and its use in risk analysis for potential regulatory use. Topics covered include: biomarkers for nanotoxicity assessment, nanotoxicity assessment by gene expression analysis in vivo and in vitro models for nanotoxicity testing, mechanisms of nanotoxicity, pharmacokinetics of nanomaterials, nanotoxicity of foods including food processing, food packaging and food safety, nanotoxicity of drugs including drug development and drug delivery, nanotoxicity of cosmetics and consumer products, health and environmental impact of nanotoxicity, safety evaluation of nanomaterials, regulatory impact of nanomaterials. *Nanotoxicity: From in vivo and in vitro Models to Health Risks* is a valuable authoritative source of information for readers from a wide range of disciplines such as toxicology, pharmacology, drug toxicity and food and environmental sciences. The book will be useful to the research community in academia, industry, hospitals and government, as well as to government regulators and risk assessors of foods, drugs and environmental and agricultural products.

Human Cell Culture Protocols - Joanna Picot 2005

In this second edition of a popular and widely acclaimed collection of laboratory methods, a panel of leading authorities have thoroughly brought up-to-date and optimized its cell culture techniques for a broad range of human cell types relevant to human disease. Each technique can be used to investigate a wide spectrum of important processes, ranging from the pathogenesis of disease, to the study of metabolic processes, to control of proliferation and differentiation. New to this edition are chapters on fibroblasts, Schwann cells, gastric and colonic epithelial cells, and parathyroid cells. The protocols follow the successful *Methods in Molecular Medicine*™ series format, each offering step-by-step laboratory instructions, an introduction outlining the principle behind the technique, lists of the necessary equipment and reagents, and tips on troubleshooting and avoiding known pitfalls. Wide-ranging and highly practical, *Human Cell Culture*,

Second Edition, provides novice and experienced researchers alike with a detailed, step-by-step guide to successful culture human cells today.

Innate Immunity - Jonathan Ewbank 2008

Immunologists today are interested in all of the diverse cell-types involved in host defense and have a deeper appreciation of the importance of innate immune mechanisms as a first line of protection against pathogens. This volume thus discusses the isolation and functional characterization of cells involved in innate immunity in mouse and man, including mast cells and eosinophils. Other focuses include natural killer cells, methods in statistics, in vivo imaging, genome engineering, and mutagenesis and culture that are adapted to the study of innate immunity in these hosts. These are complemented with a series of chapters dealing with alternative models: plants, worms, mosquitoes, flies, and fish. Together, these approaches and models are being used to dissect the complex interplay between hosts and pathogens and contribute to developing strategies to help fight infection. With chapters written by experts on the cutting-edge of this technology, *Innate Immunity* is an essential reference for immunologists, histologists, geneticists, and molecular biologists.

Avian Immunology - Karel A. Schat 2012-12-02

The second edition of *Avian Immunology* provides an up-to-date overview of the current knowledge of avian immunology. From the ontogeny of the avian immune system to practical application in vaccinology, the book encompasses all aspects of innate and adaptive immunity in chickens. In addition, chapters are devoted to the immunology of other commercially important species such as turkeys and ducks, and to ecoimmunology summarizing the knowledge of immune responses in free-living birds often in relation to reproductive success. The book contains a detailed description of the avian innate immune system, encompassing the mucosal, enteric, respiratory and reproductive systems. The diseases and disorders it covers include immunodepressive diseases and immune evasion, autoimmune diseases, and tumors of the immune system. Practical aspects of vaccination are examined as well. Extensive appendices summarize resources for scientists including cell lines, inbred chicken lines, cytokines, chemokines, and monoclonal antibodies. The world-wide importance of poultry protein for the human diet, as well as the threat of avian influenza pandemics like H5N1 and heavy reliance on vaccination to protect commercial flocks makes this book a vital resource. This book provides crucial information not only for poultry health professionals and avian biologists, but also for comparative and veterinary immunologists, graduate students and veterinary students with an interest in avian immunology. With contributions from 33 of the foremost international experts in the field, this book provides the most up-to-date review of avian immunology so far. Contains a detailed description of the avian innate immune system reviewing constitutive barriers, chemical and cellular responses; it includes a comprehensive review of avian Toll-like receptors. Contains a wide-ranging review of the "ecoimmunology" of free-living avian species, as applied to studies of population dynamics, and reviews methods and resources available for carrying out such research.

Laboratory Protocols in Fungal Biology - Vijai Kumar Gupta 2022

Mycology has an integral role to play in the development of the biotechnology and biomedical sectors. It has become a subject of increasing importance as new fungi and their associated biomolecules are identified. As this discipline comes to the forefront of research in these sectors, the requirement for a consolidation of available research approaches is required. The First Edition of this book has a few basic and applied protocols. With the Second Edition, this book provides consolidated information on recent developments and the most widely used mycological methods available in the fields of biochemistry, biotechnology and microbiology. The methods outlined offer clear and concise directions to the reader and covers both standard protocols and more applied mycological methods. This book provides useful information for undergraduates, post-graduates, and specialists and researchers studying fungal biology.

Hayes' Principles and Methods of Toxicology - A. Wallace Hayes 2014-10-10

Hayes' Principles and Methods of Toxicology has long been established as a reliable reference to the concepts, methodologies, and assessments integral to toxicology. The new sixth edition has been revised and updated while maintaining the same high standards that have made this volume a benchmark resource in the field. With new authors and new chapters
Lymphocytes - Sarah L. Rowland-Jones 2000

Understanding how the body uses specialised immune cells called lymphocytes in fighting both infections and tumours has been central to designing new strategies for vaccines and immunotherapy. This book provides practical advice for scientists embarking on the study of lymphocytes in the laboratory, and introduces several new techniques that have revolutionised this field.

DNA Vaccines - Douglas B. Lowrie 2000

Annotation State-of-the-art review articles by leading experts summarize how to develop and employ the highly promising new DNA vaccines, what clinical results can be expected from their use, and what is known about how they work. Key topics range from vaccine design and construction to preparation and delivery methods, including the use of classical adjuvants, "genetic adjuvants," and the immunostimulatory properties of DNA and selected oligonucleotide sequences. Several contributors provide strategic ideas on antigen engineering and describe the novel applications of DNA vaccine methodology that have recently emerged. Cutting-edge and comprehensive, *DNA Vaccines: Methods and Protocols* provides a snapshot of the methods and thinking from which the vaccines of tomorrow will evolve.

Immunology: Overview and Laboratory Manual - Tobili Y. Sam-Yellowe 2021-09-02

A two-in-one text providing teaching lab students with an overview of immunology as well as a lab manual complete with current standard exercises. Section I of this book provides an overview of the immune system and immunity, and includes review questions, problem sets, case studies, inquiry-based questions, and more to provide students with a strong foundation in the field. Section II consists of twenty-two lab exercises focused on key concepts in immunology, such as antibody production, cell separation, cell function, immunoassays, Th1/Th2 cytokine detection, cell and tissue culture methods, and cell and molecular biology techniques. Appendices include safety information, suggested links and readings, and standard discipline processes, protocols, and instructions.

Immunity and Tolerance - Anne O'Garra 2013

"The first time I went to the United States was in 1953...to the Cold Spring Harbor symposium where Jim Watson described in detail his model of double helix. All these symposia were extremely important. I think Cold Spring Harbor was one of the birthplaces of molecular biology" - Francois Jacob The Symposia have been one of the great institutions of such research for over 70 years and the history of whole fields can be found in the pages of the Symposia volumes. The 78th Cold Spring Harbor Symposium addresses Immunity & Tolerance. Topics include: · Stem cells and cell fate decisions · Regulation of immune cell development · Antigen receptor gene assembly and modification · Signal transduction · Regulation of lymphocyte function · Innate immune response and inflammation · Adaptive immunity · Mucosal immunity · Organ specific immunity · Immune regulation and tolerance · Autoimmunity and allergy · Immunity and cancer · Pathogen-immune system interactions · Vaccine development · Novel strategies to engineer/harness immunity

Cancer Cell Biology - Sherri L. Christian 2022-07-25

This volume provides detailed methods on the mechanisms of underlying cancer cell biology. Chapters guide readers through techniques for culturing cancer cell lines, xenografts, cryopreservation of tumor cells, analyzing the co-culture of breast cancer cells, protein secretion by ELISA, flow cytometry-based, multi-parametric immunofluorescence analysis, protein expression by western blot, analysis of surface protein levels, protein recycling by biotinylation assay, and proteomics analysis by liquid chromatography-mass spectrometry. Written in the format of the highly successful *Methods in Molecular Biology* series, each chapter includes an introduction to the topic, lists necessary materials and reagents, includes tips on troubleshooting and known pitfalls, and step-by-step, readily reproducible protocols. Authoritative and cutting-edge, *Cancer Cell Biology: Methods and Protocols* aims to provide a comprehensive set of tools for the analysis of cancer cell biology in the lab.

Placenta and Trophoblast - Michael J. Soares 2006

A collection of cutting-edge laboratory techniques for the study of trophoblast and placental biology. The techniques presented range from experimental animal models, to animal and human placental organ and cell culture systems, to morphological, biochemical, and molecular strategies for assessing trophoblast/placental growth, differentiation and function. Volume 1 provides readily reproducible protocols for studying embryo-uterine implantation, trophoblast cell development, and the organization and molecular characterization of the placenta. Highlights include strategies for the isolation and culture of

trophoblast cells from primates, ruminants, and rodents, and precise guidance to the molecular and cellular analysis of the placental phenotype. A companion second volume concentrates on methods for investigating placental function.

Tumor Immunology and Immunotherapy - Cellular Methods Part B - 2020-01-29

Tumor Immunology and Immunotherapy - Cellular Methods Part B, Volume 632, 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 include Quantitation of calreticulin exposure associated with immunogenic cell death, Side-by-side comparisons of flow cytometry and immunohistochemistry for detection of calreticulin exposure in the course of immunogenic cell death, Quantitative determination of phagocytosis by bone marrow-derived dendritic cells via imaging flow cytometry, Cytofluorometric assessment of dendritic cell-mediated uptake of cancer cell apoptotic bodies, Methods to assess DC-dependent priming of T cell responses by dying cells, and more. Contains content written by authorities in the field Provides a comprehensive view on the topics covered Includes a high level of detail

Dendritic Cell Protocols - Stephen P. Robinson 2001

It is now apparent that dendritic cells not only play important roles in the body's immune system through their complex interactions with T cells, B cells, and other cell types, but also possess distinct functional attributes that enable them to assume different roles in that system. In Dendritic Cell Protocols, Stephen P. Robinson, MD, PhD, and Andrew Stagg, PhD, have brought together a wide range of time-proven methods for studying these so-called veiled cells. Many of these readily reproducible techniques deal with the problem of obtaining sufficient dendritic cells for analysis, whether by isolation from a wide variety of tissues or from various progenitor cell populations. Other methods describe in step-by-step fashion the techniques commonly used for analyzing aspects of dendritic cells, ranging from cell migration to antigen uptake and T cell stimulation. Variant methods that have been successful in other laboratories have been included to expand experimental possibilities. In addition, a few techniques explore the practical challenges involved in using dendritic cells in a clinical setting to develop novel immunotherapeutics. State-of-the-art and highly practical, Dendritic Cell Protocols provides both experienced and novice investigators with powerful tools to illuminate the complex biology of these foundation cells-cells that shape the evolution of acquired immune responses, play important roles in innate immunity, and promise the development of powerful new immunotherapeutics.

Antifungal Agents - Erika J. Ernst 2008-02-02

A collection of state-of-the-art molecular methods for studying antifungal resistance, for discovering and evaluating both new and existing antifungal drugs, and for understanding the host response and immunotherapy of such agents. The protocols follow the successful Methods in Molecular Medicine™ series format, each offering step-by-step laboratory instructions, an introduction outlining the principle behind the technique, lists of the necessary equipment and reagents, and tips on troubleshooting and avoiding known pitfalls. Antifungal Agents: Methods and Protocols offers clinician-scientists, microbiologists and molecular biologists the productive tools they need today to understand and successfully develop new therapeutic agents for yeast, mold, and fungal infections.

Macrophages and Dendritic Cells - Neil E. Reiner 2014-11-26

In light of the critical contributions of macrophages and dendritic cells to diverse inflammatory diseases and to immunity and host defense, state-of-the-art approaches to the investigation of their behavior are essential. In Macrophages and Dendritic Cells: Methods and Protocols, expert researchers contribute laboratory protocols involving these two vital cell types functioning at the junction of the innate and acquired immune systems. The volume delves first into isolation and cell culturing then continues with topics such as phagocytosis, genetic manipulation, macrophage activation, and lipid signaling. Written in the highly successful Methods in Molecular Biology™ series format, chapters include brief introductions to their respective subjects, lists of the necessary materials and reagents, step-by-step, readily reproducible protocols, and notes on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, Macrophages and Dendritic Cells: Methods and Protocols provides a timely and useful guide for both seasoned investigators and neophytes pursuing this imperative field of study.

Fasciola hepatica - Martin Cancela 2020-05-14

This volume described basic and advanced protocols to study *F. hepatica* parasite biology. Chapters guide readers through protocols on different developmental stages of *F. hepatica*, characterize tegumental, secreted proteins, spatial and temporal gene expression, immunological effects of ESP on macrophages, eosinophil apoptosis, macrophages alternative activation, toll-like receptor interactions, obtain peritoneal and splenic dendritic cells of mice, and protocols to detect *F. hepatica* albendazole resistance. 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, *Fasciola hepatica*: Methods and Protocols provides different topics in areas such a biochemistry, immunology, molecular biology, microscopy, vaccinology in order to extend the interest in this book to research community working with *Fasciola hepatica* and related trematodes.

Flow Cytometry and Cell Sorting - Andreas Radbruch 2013-06-29

The practical aspects of flow cytometry and sorting are emphasized in this book which introduces the beginner to the technology and provides tips and tricks for the advanced user. The clear structure makes it easy to address specific problems fast. The chapters cover the modern applications of these procedures, with emphasis on immunofluorescence (antibody-fluorochrome conjugation, staining principles and data evaluation); the isolation of specific chromosomes, cells and fragile, large particles by magnetic and fluorescence-activated sorting; cellular biochemistry; and the dynamics of proliferation. The methods have been field-tested in recent EMBO courses on flow cytometry.

Immunometabolism - Suresh Mishra 2021-09-02

This detailed book showcases the tremendous effort and progress made in developing techniques and protocols for the study of immunometabolism, and in utilizing recent technological advances for probing and manipulating adipose and immune cells, and subsequently, their functions and immunometabolic consequences. Written by experts in the field, many chapters use macrophages as a model immune cell type, due to their prominence in the innate immune system and the exhaustive study of their traits. Protocols using adipocytes, dendritic cells, and T cells as model cell lines, as well as measurement of glucose metabolism at the systemic level, have also been included. Written for the highly successful Methods in Molecular Biology book series, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and practical, Immunometabolism: Methods and Protocols serves as a vital guide for researchers working at the important interface of immunology and metabolism.

Current Protocols in Immunology - John E. Coligan 1991

Current Protocols in Immunology is a three-volume looseleaf manual that provides comprehensive coverage of immunological methods from classic to the most cutting edge, including antibody detection and preparation, assays for functional activities of mouse and human cells involved in immune responses, assays for cytokines and their receptors, isolation and analysis of proteins and peptides, biochemistry of cell activation, molecular immunology, and animal models of autoimmune and inflammatory diseases. Carefully edited, step-by-step protocols replete with material lists, expert commentaries, and safety and troubleshooting tips ensure that you can duplicate the experimental results in your own laboratory. Bimonthly updates, which are filed into the looseleaf, keep the set current with the latest developments in immunology methods. The initial purchase includes one year of updates and then subscribers may renew their annual subscriptions. Current Protocols publishes a family of laboratory manuals for bioscientists, including Molecular Biology, Human Genetics, Protein Science, Cytometry, Cell Biology, Neuroscience, Pharmacology, and Toxicology.

Interferon Methods and Protocols - Daniel J. J. Carr 2005

A compendium of optimized methods to measure type I interferon efficacy as an antiproliferative or an antiviral agent. These cutting-edge techniques range from the simple to the highly complex and serve to illuminate the signaling cascades and the activation of enzymatic pathways prompted by interferon. State-of-the-art and highly practical, Interferon Methods and Protocols offers researchers powerful tools not only to ascertain the functions of IFN-stimulatory gene products, but also to identify additional molecular

pathways that will clarify our understanding of the many biological events influenced by IFNs.

Staphylococcus Aureus - Kelly C. Rice 2021

This volume details the phenotypic characterization of Staphylococcus aureus, with a focus on in vitro and ex vivo methodologies. The chapters in this book cover topics such as in vitro assessment of classical S. aureus virulence attributes; quantifying promoter activity using a S. aureus codon-optimized lacZ plasmid; biologically-relevant growth environments; metabolic and stress resistance assays; and in vivo and ex vivo models of host-pathogen interaction. 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 authoritative, Staphylococcus aureus: Methods and Protocols is a valuable resource for anyone interested in this fascinating and developing field.

Gastrointestinal Physiology and Diseases - Andrei I. Ivanov 2016-04-13

This volume provides a comprehensive collection of classical and cutting edge protocols and techniques to examine the normal development and physiological functions of the gastrointestinal system and to model the most common digestive diseases. The chapters focus on diverse research topics including ex vivo systems to study gastrointestinal development and functions, in vivo imaging of the gastrointestinal tract, isolation and characterization of intestinal immune cells, and animal models of gastrointestinal inflammation and cancer. The Gastrointestinal Physiology and Diseases: Methods and Protocols book targets wide audience of physiologists, cell and developmental biologists, immunologists, and physician-scientists working in the field of gastroenterology and beyond. 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. Highly practical and clearly written, Gastrointestinal Physiology and Diseases: Methods and Protocols will serve both seasoned researchers as well as newcomers to the field and will provide a unique resource and expert guidance to modern laboratory techniques developed for examining normal functions and diseases of the gastrointestinal tract.

Cartilage: from Developmental to Translational Biology - Guanghua Lei 2022-11-01

Dendritic Cell Protocols - Elodie Segura 2016-05-04

The third edition of this volume is aimed at providing both beginners and more experienced researchers a

choice of methods to isolate and analyze dendritic cells(DC). An introductory review provides an overview of recent advances in the characterization of DC subsets in mouse and human. While additional chapters provide methods to culture human and mouse dendritic cells, protocols for the isolation of dendritic cells, the isolation of dendritic cell progenitors from mouse, and the purification of dendritic cells from human blood. 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, Dendritic Cell Protocols, Third Edition aims to ensure successful results in the further study of this vital field.

Human Monocytes - Marek Zembala 1989

Monocytes represent one of the major types of white blood cells in man which prevent infection by ingesting and killing invading pathogens and by releasing factors which stimulate and regulate lymphocytes. Monocytes "purify" the blood, removing immune complexes, mediating inflammatory responses, and initiating tissue repair. Human Monocytes represents an up-to-date, definitive account of this important cell. It covers the cells biochemical, immunological, and inflammatory functions and its role in many diseases, including asthma, atherosclerosis, rheumatoid arthritis, and AIDS.

Electroporation Protocols - Shulin Li 2016-08-27

Electroporation gene therapy, or gene electrotransfer, has evolved greatly over the last few decades as a result of the remarkable progress in genetic sequencing, gene array analysis, gene cloning, gene expression detection, DNA manufacture and discovery and synthesis of siRNA. Electroporation Protocols: Preclinical and Clinical Gene Medicine, Second Edition provides in-depth knowledge on the delivery of naked DNA and small-interfering RNA (siRNA) to the targeted cells, tissues, and animals for prevention and treatment of disease. It builds on the success of the first edition and on the progress made in siRNA delivery and DNA vaccines for large animals as well as discovery of electroporation applications for the fragile tissues and for internal organs. 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, Electroporation Protocols: Preclinical and Clinical Gene Medicine, Second Edition aims to provide not only comprehensive coverage of the basic theory and practical application of electroporation siRNA therapy, gene therapy, and vaccine, but also elaborates on the most current views from the experts in this field, serving as an invaluable resource for investigators both in and outside of this field.