

Safety Datasheet Exempt Resources Rndsystems

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. Today's wireless services have come a long way since the roll out of the conventional voice-centric cellular systems. The demand for wireless access in voice and high rate data multi-media applications has been increasing. New generation wireless communication systems are aimed at accommodating this demand through better resource management and improved transmission technologies. The interest in increasing Spectrum Access and improving Spectrum Efficiency combined with both the introduction of Software Defined Radios and the realization that machine learning can be applied to radios has created new intriguing possibilities for wireless radio researchers. This book is aimed to discuss the cognitive radio, software defined radio (SDR), and adaptive radio concepts from several aspects. Cognitive radio and cognitive networks will be investigated from a broad aspect of wireless communication system enhancement while giving special emphasis on better spectrum utilization. Applications of cognitive radio, SDR and cognitive radio architectures, spectrum efficiency and soft spectrum usage, adaptive wireless system design, measurements and awareness of various parameters including interference temperature and geo-location information are some of the important topics that will be covered in this book. Cognitive Radio, Software Defined Radio, and Adaptive Wireless Systems is intended to be both an introductory technology survey/tutorial for beginners and an advanced mathematical overview intended for technical professionals in the communications industry, technical managers, and researchers in both academia and industry.

This book analyses and compares concretely the processes of knowledge production, dissemination and use in the engineering, the information and communication technology, the health and the education sectors.

This book explores major similarities and differences in the structure, conduct, and performance of the national technology transfer systems of Germany and the United States. It maps the technology transfer landscape in each country in detail, uses case studies to examine the dynamics of technology transfer in four major technology areas, and identifies areas and opportunities for further mutual learning between the two national systems.

Agriculture for Development

Regulatory B Cells

World Investment Report 2020

The Surfaceome

Biobanking

Handbook of Quantitative Science and Technology Research

"The world's agricultural economy was transformed remarkably during the 20th century. The agricultural productivity growth that fueled this change was generated primarily by agricultural R&D financed and conducted by a small group of rich countries—especially the United States, but also Japan, Germany, and France. In an increasingly interdependent world, both rich and poor countries have depended on agricultural research conducted in the private and public laboratories of these few countries, even if they have not contributed to financing the activity. But now the rich-country research agendas are shifting. In particular, they are no longer as interested in simple productivity enhancement. Dietary patterns and other priorities change as incomes increase. Food-security concerns are still pervasive among poor people, predominantly in poor countries. In rich countries we see a declining emphasis on enhancing the production of staple foods and an increasing emphasis on enhancing certain attributes of food (such as growing demand for processed and so-called functional foods) and on food production systems (such as organic farming, humane livestock production systems, localized food sources, and "fair trade" coffee). In addition to growing differences between rich and poor countries in consumer demand for innovation, research agendas may diverge because of differences in producer and processor demands. Farmers in rich countries are demanding high-technology inputs that often are not as relevant for subsistence agriculture (such as precision farming technology or other capital-intensive methods). As well as differences in value-adding processes to serve consumer demands, differences in farm production technologies are emerging to serve the evolving agribusiness demands for farm products with specific attributes for particular food, feed, energy, medical, or industrial applications.The purpose of this volume is to document the changing institutions and investments in agricultural R&D in less-developed countries, in part to form a companion volume to Paying for Agricultural Productivity by providing a more complete global picture of the issues."

This handbook offers a state-of-the-art overview of quantitative science and technology research. It focuses on the development and application of indicators derived from data on scientific or scholarly publications and patents. It comprises 34 chapters written by leading specialists in the various sub-domains. These chapters deal with theoretical and methodological issues, illustrate applications, and highlight their policy context and relevance. Authors present a survey of the research topics they address, and show their most recent achievements. The 34 chapters are arranged into 5 parts: Disciplinary Approaches; General Methodology; The Science System; The Technology System; and The Science–Technology Interface. The Editor's Introduction provides a further specification of the handbook's scope and of the main topics addressed in its chapters. This handbook aims at four distinct groups of readers: – practitioners in the field of science and technology studies; – research students in this field; – scientists, scholars and technicians who are interested in a systematic, thorough analysis of their activities; – policy makers and administrators who wish to be informed about the potentialities and limitations of the various approaches and about their results.

On a mountainside in sunny Tuscany, in October 1989, 96 people from 23 countries on five continents gathered to learn and teach about the problems of managing contemporary science. The diversity of economic and political systems represented in the group was matched by our occupations, which stretched from science policy practitioners, through research scientists and engineers, through academic observers of science and science policy. It was this diversity, along with the opportunities for infonnal discussion provided by long meals and remote location, that made the conference a special learning experience. Except at lecture time, it was impossible to distinguish the "students" at this event from the "teachers," and even the most senior members of the teaching staff went away with a sense that they had learned more from this group than from many a standard conference on science policy they had attended. The flavor of the conference experience cannot be captured adequately in a proceedings volume, and so we have not tried to create a historical record in this book. Instead, we have attempted to illustrate the core problems the panicipants at the conference shared, discussed, and debated, using both lectures delivered by the fonnal teaching staff and summaries of panel discussions, which extended to other panicipants and therefore increased the range of experiences reponed.

Shotgun Proteomics: Methods and Protocols serves as a vital collection of protocols through which thousands of proteins can be simultaneously identified, quantified and characterized in a high throughput manner. Beginning with the history of proteomics centered on the vital role of mass spectrometry in its development, this detailed volume continues with chapters on sample pre-fractionation, in vivo and in vitro stable isotope labeling, label-free proteomics, informatics, protein-protein interactions, targeted proteomics and post-translational modifications. Written for the highly successful Methods in Molecular Biology series, 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. Practical and comprehensive, Shotgun Proteomics: Methods and Protocols is an ideal and up-to-date guide for researchers seeking to understand the proteome of any given species.

Lessons and Perspectives

How to Win the Life Science Race

Proceedings of the 2012 International Conference on Applied Biotechnology (ICAB 2012)

Technology Transfer Systems in the United States and Germany

Agricultural R and D in the Developing World

Transformational Change for People and the Planet

This volume explores various approaches for enrichment, detection, isolation, and molecular profiling of circulating tumor cells (CTCs). Each chapter provides comprehensive descriptions and guidelines on how to perform innovative experiments in CTC research. Included are protocols for capture of CTCs via filtration and density gradient centrifugation: microfluidic and immunomagnetic separation; immunocytochemistry, fluorescence in situ hybridization, and flow cytometry: assays designed for genomic characterization and functional analyses of CTCs, and many more. Written in the highly successful Methods in Molecular Biology series format, the chapters in this book 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, Circula ting Tumor Cells: Methods and Protocols is a valuable resource for laboratory researchers and clinicians who are interested in furthering their studies on CTCs.

This book discusses critical areas of progress in stem cell research, including the most recent research and applications of pluripotent embryonic cells, induced pluripotent cells, oligopotent tissue stem cells and cancer stem cells. The text covers basic knowledge of stem cell biology, stem cell ethics, development of techniques for applying stem cell therapy, the technology of obtaining appropriate stem cells in cancer and how therapy may be directed to cancer stem cells. This new volume is essential reading for all scientists currently in the field or allied research areas, and those for those graduate students who envision a career in stem cells.

What are the challenges that small countries face concerning innovation and what are the effects of globalization on their innovation systems? In this very interesting, rich and timely book, Edquist and Hommen compare ten different small national innovation systems from the Asia Pacific and Northern Europe that are rather advanced in their development. The answers that the authors give are characteristics of each national system that shapes innovative activity, but also to some commonalities that exist across these countries. Franco Malerba, Bocconi University, Italy This major book presents case studies of ten small country national systems of innovation (NSIs) in Europe and Asia, namely, Denmark, Finland, Hong Kong, Ireland, the Netherlands, Norway, Singapore, South Korea, Sweden, and Switzerland. The authors carefully selected as examples of success within the context of globalization and as new economies where competition is increasingly based on innovation. To facilitate comparative analysis the ten studies follow a common structure, informed by an activities-based approach to describing and analysing NSIs, which addresses the critical issues of globalization and the consequences of innovation: fast growth and slow growth countries, concentrating on issues of innovation policy. The results illustrate the usefulness of an activities-based approach to studying NSIs, point to distinctive national roles within an increasingly differentiated international division of labour and address the key themes of selectivity and coordination in innovation policy. This valuable book presents one of the most comprehensive and up-to-date country studies of NSIs in the last decade. It will have great import and should be widely read by every serious student and scholar of innovation studies.

The book covers all the important aspects of research methodology, and addresses the specific requirements of engineering students, such as methods and tools, in detail. It also discusses effective research in engineering today, which requires the ability to undertake literature reviews utilizing different online databases, to attribute credit for any prior work mentioned, to respect intellectual property rights, to publish research findings, and to manage research projects. The book also covers the importance of research methodology in research, and much more. Further, the book also considers soft skills like research management and planning, dealing with criticism in research and presentation skills, which are all equally important and need to include in research methodology education. Lastly, it provides the technical knowhow needed to file patents in academia, an important area that is often ignored in research methodology education. This book is a valuable resource for PhD students in India and South East Asia, as research methodology is a part of their coursework.

Cardiac Tissue Engineering

Cognitive Radio, Software Defined Radio, and Adaptive Wireless Systems

Matrix Metalloproteases

The Research System in Transition

Management of Research Infrastructures: A South African Funding Perspective

Medical Planners

This second edition provides new and updated chapters useful for the study of Regulatory B cells. Organized in four sections, chapters detail basic methods for the isolation and immunophenotypical analysis of these cells, experimental approaches for the ex vivo generation/expansion of IL-10 producing B cells, molecular biology techniques for the analysis of IL-10 expression and production, and animal models mimicking pathologic settings. Written in the highly successful Methods in Molecular Biology series format, chapters include an introduction to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, as well as tips on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, Regulatory B Cells: Methods and Protocols, Second Edition aims to be useful to the scientific community and serve to clarify some unsolved aspects of Regulatory B Cells research.

The 30th edition of the World Investment Report looks at the prospects for foreign direct investment and international production during and beyond the global crisis triggered by the COVID-19 (coronavirus) pandemic. The Report not only projects the immediate impact of the crisis on investment flows, but also assesses how it could affect a long-term structural transformation of international production. The theme chapter of the Report reviews the evolution of international production networks over the past three decades and examines the configuration of these networks today. It then projects likely course changes for the next decade due to the combined effects of the pandemic and pre-existing megatrends, including the new industrial revolution, the sustainability imperative and the retreat of laissez-faire policies. The system of international production underpins the economic growth and development prospects of most countries around the world. Governments worldwide will need to adapt their investment and development strategies to a changing international production landscape. At the request of the UN General Assembly, the Report has added a dedicated section on investment in the Sustainable Development Goals, to review global progress and propose possible courses of action.

This volume explores the latest developments and contributions to the field of 3D bioprinting, and discusses its use for quality R&D and translation. The chapters in this book are divided into two parts: Part one covers generic themes in bioprinting to introduce novice readers to the field, while also providing experts with new and helpful information. Part two discusses protocols used to prepare, characterize, and print a variety of biomaterials, cells, and tissues. These chapters also emphasize methods used for printing defined and humanized constructs suitable for human tissue modelling in research and applicable to clinical product development. 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, 3D Bioprinting: Methods and Protocols is a valuable resource for researchers and bioprinting laboratories/facilities interested in learning more about this rapidly evolving technology. .

Pharmaceutical giants have been doubling their investments in drug development, only to see new drug approvals to remain constant for the past decade. This book investigates and highlights a set of proactive strategies, aimed at generating sustainable competitive advantage for its protagonists based on value-generating business practices. We focus on three sources of pharmaceutical innovation: new management methods in the drug development pipeline, new technologies as enablers for cutting-edge R&D, and new forms of internationalisation, such as outside-in innovation in the early phases of R&D.

The DARPA Model for Transformative Technologies: Perspectives on the U.S. Defense Advanced Research Projects Agency

World Development Report 2008

Stem Cells Handbook

Rice Almanac, 4th edition

Shotgun Proteomics

The Use of Publication and Patent Statistics in Studies of S&T Systems

This updated edition collects cutting-edge techniques used to study neural stem and progenitor cells as well as the brain microenvironment. Featuring a wide range of technological advances in the study of neural stem cells, the volume highlights the promises of stem cell-based therapeutic applications for central nervous system ailments. Written for the highly successful Methods in Molecular Biology series, 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, Neural Progenitor Cells: Methods and Protocols, Second Edition serves as an invaluable resource for the next generation of neuroscientists as they develop innovative experimental paradigms and progress toward therapeutic applications in the field of neurobiology.

This volume not only discusses various common biobanking topics, it also delves into less-discussed subjects such as what is needed to start a biobank, training of new biobanking personnel, and ethnic representation in biospecimen research. Other chapters in this book span practical topics including: disaster prevention and recovery; information technology; flora and fauna preservation including zoological fluid specimen photography; surgical and autopsy biobanking; biobanking of bodily fluids; biosafety; cutting frozen sections; immunohistochemistry; nucleic acid extraction; and biospecimen shipping. 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. Unique and comprehensive, Biobanking: Methods and Protocols is a valuable resource for novice and practicing biobankers, and for end-user researchers. This book aims to bring new insight into the field and expand on current biomedical biobanking studies.

This fourth edition of the Rice Almanac continues the tradition of the first three editions by showcasing rice as the most important staple food in the world and all that is involved in maintaining rice production. It also breaks new ground in its coverage of issues related to rice production, both environmental--including climate change--and its importance for food security and the global economy. It also further expands coverage of the world ' s rice production area by featuring 80 rice-producing countries around the world.

The 2012 International Conference on Applied Biotechnology (ICAB 2012) was held in Tianjin, China on October 18-19, 2012. It provides not only a platform for domestic and foreign researchers to exchange their ideas and experiences with the application-oriented research of biotechnology, but also an opportunity to promote the development and prosperity of the biotechnology industry. The proceedings of ICAB 2012 mainly focus on the world's latest scientific research and techniques in applied biotechnology, including Industrial Microbial Technology, Food Biotechnology, Pharmaceutical Biotechnology, Environmental Biotechnology, Marine Biotechnology, Agricultural Biotechnology, Biological Materials and Bio-energy Technology, Advances in Biotechnology, and Future Trends in Biotechnology. These proceedings are intended for scientists and researchers engaging in applied biotechnology. Professor Pingkai Ouyang is the President of the Nanjing University of Technology, China.

Professor Tongcun Zhang is the Director of the Key Laboratory of Industrial Fermentation Microbiology of the Ministry of Education at the College of Bioengineering, Tianjin University of Science and Technology, China. Dr. Samuel Kaplan is a Professor at the Department of Microbiology & Molecular Genetics at the University of Texas at Houston Medical School, Houston, Texas, USA. Dr. Bill Skarnes is a Professor at Wellcome Trust Sanger Institute, United Kingdom.

Research & Development Contracting

Leading Pharmaceutical Innovation

The Changing Role and Challenges for Academic Institutions

Transforming Global Information and Communication Markets

3D Bioprinting

Inflammation

This volume details standard techniques for the characterization of urothelial carcinoma as well as methods to investigate mechanisms of carcinogenesis. Chapters guide readers on cellular and animal models for urothelial carcinoma and related diseases, molecular analyses from body fluids, and new approaches to therapy. 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, Urothelial Carcinoma: Methods and Protocols hopes that the techniques described in this volume will contribute to the current upturn in research on urothelial carcinoma and to the application of its results in clinical practice.

Public policy is regularly shaken by health crises or unexpected discoveries; future directions in toxicology assessment are therefore urgently needed. Convergent evidences suggest endocrine or nervous disrupting effects of pesticides, as well as effects on wildlife and the environment. These effects are amplified by the use of surfactants and/or combinations of different active principles. The usual concepts of regulatory toxicology are challenged by endocrine, nervous or immune disruption, or epigenetic effects. Indeed, most pollutants alter cell-cell communication systems to promote chronic diseases. They may accumulate in the food chain. Mixtures effects with other pollutants may change their bioavailability and their toxicity. The lack of scientific knowledge in these matters has large costs for public health. This Research Topic focuses on the toxic effects of pesticides associated with large scale cultivation of genetically modified (GM) plants.

This open access book provides an overview of the building blocks necessary for managing, steering and guiding the establishment of a research infrastructure (RI). It offers valuable insights into RI investment, access and management at the academic, grants management, agency and policy level, and serves as a useful guide for the research community, students, and those in the private sector wishing to understand the approaches and opportunities involved in the establishment, maintenance and management of research infrastructure platforms. Presenting a holistic view of RI investment and granting cycles from a South African perspective, the books target audience includes those working in science diplomacy, policymaking and science grants councils (especially in Africa) as well as funders and donors.

This volume provides readers with the latest techniques and tools to assess modifications and functions of the surfaceome. The chapters in this book are divided into 4 sections: discovery-based approaches to surfaceome content; targeted approaches for surfaceome content; cell-based function analyses related to surfaceome content; and computational approaches in surfaceome studies. Section 1 focuses on discovery-based approaches for cataloging surfaceome content that analyses the surfaceome of bacteria, avian embryos, and mammalian systems. Section 2 discusses methods that over-express specific targets in Sf9 cells and generate bi-specific antibodies for targeting cancer and somatic cells. Section 3 explores voltage dependent sodium channels and high-content electrophysiological analyses. The final section looks at the new web-based platform known as targets-search. 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 thorough, Surfaceome: Methods and Protocols assists in the study of cell surface protein biology and function. It is a valuable resource for all researchers interested in this field.

Cell Reprogramming

International Production Beyond the Pandemic

BCL-2 Family Proteins

Globalization, Change and Policy in Asia and Europe

Evaluating Environment and Development

Engineering Research Methodology

This Open Access book deals with the pressing question of how to achieve transformational change that reconciles development with environmental sustainability. It particularly focuses on the role of evaluation in finding sustainable solutions. Environment and development are closely interlinked, as are human health and ecosystem health. The pandemic that began in 2020 has allowed hitherto unknown pathogens spill over to humans wreaking havoc on people's lives and livelihoods. We are already seeing the impacts of global climate change in terms of heatwaves, forest fires and increased storms. The Sustainable Development Goals (SDGs) explicitly recognize the equal importance of the social, economic and environmental dimensions. To address multiple complex challenges it is essential to know that our responses are effective and that they make a positive difference. Evaluation can provide invaluable lessons to how we design policies, strategies and programs and how we allocate limited resources between competing priorities. This book brings together key thinkers and practitioners from the public and private sectors, donor agencies, to present the latest knowledge and experience on how to evaluate interventions in the nexus of environment and development. The book does not promote any particular approach or methodology, but rather emphasizes the need for mixed methods to address the question at hand in the best and most suitable manner. It covers cases from a variety of countries and renewable energy, natural resources management, biodiversity conservation and more. This book is not a conference proceedings although it has its roots in the Third International Conference on Evaluating Environment and Development organized by the GEF Independent Evaluation Office in October 2019. The conference brought together a larger number of established and emerging users from the Global North and South, representing a wide variety of organizations, to discuss the frontiers of environment and development evaluation. Following the conference, the editors identified and contacted the participants who made key contributions at the conference and asked them to develop their ideas and papers into book chapters according to a call for contributions.

Globalization, the information age, and the rise of the knowledge-based economy are significantly transforming the way we acquire, disseminate, and transform knowledge. And, as a result, knowledge production is becoming closer and more directly linked to economic competitiveness. This evolution is also putting new and urgent demands on academic institutions to respond to the challenges of the 21st century. There is growing pressure on the institutions of higher education and research in developed economies to find and affirm their new role in the national innovation system. The authors have done a masterful job of charting the important story of DARPA, one of the key catalysts of technological innovation in US recent history. By plotting the development, achievements and structure of the leading world agency of this kind, this book stimulates new thinking in the field of technological innovation with bearing on how to respond to climate change in the 21st century.

time. The DARPA Model provides a useful guide for governmental agency and policy leaders, and for anybody interested in the role of governments in technological innovation. —Dr. Kent Hughes, Woodrow Wilson International Center for Scholars This volume contains a remarkable collection of extremely insightful articles on the world's most successful advanced technology programs. It provides a variety of perspectives that in turn benefit from being presented together in a comprehensive volume. It reviews DARPA's unique role in the U.S. innovation system, as well as the challenges DARPA and its clones face today. As the American model is being considered for adoption by a number of countries worldwide, this book makes a welcome and timely contribution to the discussion of how to stimulate technological innovation. — Prof. Charles Wessner, Georgetown University The U.S. Defense Advanced Research Projects Agency (DARPA) has played a remarkable role in the creation new transformative technologies, revolutionizing defense with drones and precision-guided munitions, and transforming civilian life with portable GPS receivers, voice-recognition, and, most famously, the ARPANET and its successor, the Internet. Other parts of the U.S. Government and some foreign governments have tried to apply the 'DARPA model' to help develop valuable new technologies. But how and why has DARPA succeeded? Which features of its operation and environment contribute to this success? And what lessons does its experience offer to other agencies? This book develops and demonstrates their own 'transformative technologies'? This book is a remarkable collection of leading academic research on DARPA from a wide range of perspectives, combining to chart an important story from the Agency's founding in the wake of Sputnik, to the current attempts to adapt it to use by other federal agencies. Informative and insightful, this book is a must-read for researchers and students interested in understanding the success of this agency and the lessons it offers to others.

Blood science has become a cornerstone of multiple disciplines. This book, contributed to by leading experts in the field, provides a comprehensive resource of protocols for areas, pre-analytical through to analytical, of plasma and serum proteomics.

Neural Progenitor Cells

Circulating Tumor Cells

Agricultural Innovation in Developing East Asia: Productivity, Safety, and Sustainability

Methods and Protocols

A Practical Insight for Researchers

Toxicity of Pesticides on Health and Environment

This volume covers past and present western blot techniques, such as diffusion blotting, slice blotting, blotting of high and low molecular weight proteins, single cell blotting and automated blotting. 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, Western Blotting: Methods and Protocols will serve as an invaluable reference for those interested in further study into this fascinating field. This book features the most cutting-edge work from the world's leading laboratories in this field and provides practical methods for differentiating pluripotent stem cells into hematopoietic lineages in the blood system. Pluripotent stem cells have attracted major interest from a fast-growing and multidisciplinary community of researchers who are developing new techniques for the derivation and differentiation of these cells into specific cell lineages. These direct differentiation methods hold great promise for the translational applications of these cells. This book is an essential reference work for researchers at all levels in the fields of hematology and stem cell biology, as well as for clinical practitioners in regenerative medicine.

This volume presents a broad selection of cutting-edge methods and tools that will enable the reader to investigate the multi-faceted manifestations of inflammation. Inflammation: Methods and Protocols is divided into four sections: the first three sections describe protocols investigating immune-mediated inflammatory disease models affecting barrier organs to the environment; the skin, the lung, and the intestinal and oral mucosa. The fourth section illustrates inflammatory disease models of the brain, joints, and vasculature. 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 notes on troubleshooting and avoiding known pitfalls. Authoritative and practical, Inflammation: Methods and Protocols aims to inspire the experienced investigator and the young experimenter alike to disentangle the fascinating process of inflammation.

This volume provides an understanding of the factors involved in nuclear reprogramming, which is essential for the success of reprogramming. The book is aimed at reprogramming differentiated cells and germ line transmission of pluripotent stem cells and features chapters that deal with reprogramming-related issues such as analysis of mitochondrial DNA in reprogrammed cells and the isolation of reprogramming intermediates; alternative methods for nuclear transfer; the production of germ-line chimeras from embryonic stem cells and induced pluripotent stem cells; and neonatal care and management of somatic cell nuclear transfer derived offspring. 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, Cell Reprogramming: Methods and Protocols

Volume 1

Knowledge Management in the Learning Society

Principles and Protocols

The Political Economy of Innovation

Small Country Innovation Systems

Universities in Transition

Cardiac Tissue Engineering: Methods and Protocols presents a collection of protocols on cardiac tissue engineering from pioneering and leading researchers around the globe. These include methods and protocols for cell preparation, biomaterial preparation, cell seeding, and cultivation in various systems. 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 key tips on troubleshooting and avoiding known pitfalls. Authoritative and practical, Cardiac Tissue Engineering: Methods and Protocols highlights the major techniques, both experimental and computational, for the study of cardiovascular tissue engineering. The world's demand for food is expected to double within the next 50 years, while the natural resources that sustain agriculture will become increasingly scarce, degraded, and vulnerable to the effects of climate change. In many poor countries, agriculture accounts for at least 40 percent of GDP and 80 percent of employment. At the same time, about 70 percent of the world's poor live in rural areas. The 'World Development Report 2008' seeks to assess where, when, and how agriculture can be an effective instrument for economic development, especially development that favors the poor. It examines several broad questions: How has agriculture changed in developing countries in the past 20 years? What are the important new challenges and opportunities for agriculture? Which new sources of agricultural growth are there in developing countries with large agricultural sectors as in Africa? How can agricultural growth be made more effective for poverty reduction? How can governments facilitate the transition of large populations out of agriculture, without simply transferring the burden of rural poverty to urban areas? How can the natural resource endowment for agriculture be protected? How can agriculture's negative environmental impacts be reduced? This report provides a comprehensive overview of the state-of-the-field and beyond. Alzheimer's disease is the most common form of dementia, accounting for 60 to 80 percent of dementia cases. It is a progressive brain disease that slowly destroys memory, thinking skills, and eventually, even the ability to carry out the simplest tasks. It is characterized by death of synapses coupled to death nerve cells and brain degeneration. This book provides a comprehensive overview of the state-of-the-field and beyond. Alzheimer's disease is the most common form of dementia, accounting for 60 to 80 percent of dementia cases. 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