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Immunology of Pregnancy Jun 22 2019 This book covers in detail contemporary hypotheses and studies related to the immunology of implantation and provides a practical approach for the application of basic reproductive immunology research to pregnancy complications such as preeclampsia, pre-term labor and IUGR. Provides complete and up to date review of current knowledge of the role of the immune system during pregnancy and the interactions between the placenta and the maternal immune system. Molecular Mechanisms of Retinal Cell Degeneration and Regeneration Sep 05 2020 **Monitoring Stem Cell Research** Jul 16 2021 **Stem Cells and Cancer in Hepatology** Dec 09 2020 Stem Cells and Cancer in Hepatology: From the Essentials to Application offers basic scientists and clinicians in the fields of stem cells, hepatology and oncology an overview of the interaction between liver biology, stem cells and cancer. It discusses how the liver performs regeneration and repair, the role stem cells play in these processes, and the mechanisms by which liver cancers are initiated and developed. As the field of stem cells and cancer stem cells in hepatology is new and dynamic, thus making it difficult for researchers and clinicians to understand the most relevant historic and novel studies, this volume addresses that challenge. Addresses both the basic and clinical perspectives of the topic, including sections on normal and cancer stem cells of the liver Provides coverage of the molecular mechanisms of liver development, the

proliferation of hepatic progenitor cells during development, epithelial cell plasticity, generation of hepatocytes by transdifferentiation, liver tissue engineering, and more Presents a study of hepatic stem cells that will help readers understand critical events during development, stem cell differentiation towards functional liver cell fate, and tumor initiation

Stem Cells For Dummies Nov 19 2021 The first authoritative yet accessible guide to this controversial topic Stem Cell Research For Dummies offers a balanced, plain-English look at this politically charged topic, cutting away the hype and presenting the facts clearly for you, free from debate. It explains what stem cells are and what they do, the legalities of harvesting them and using them in research, the latest research findings from the U.S. and abroad, and the prospects for medical stem cell therapies in the short and long term. Explains the differences between adult stem cells and embryonic/umbilical cord stem cells Provides both sides of the political debate and the pros and cons of each side's opinions Includes medical success stories using stem cell therapy and its promise for the future Comprehensive and unbiased, Stem Cell Research For Dummies is the only guide you need to understand this volatile issue.

Stem Cells Jan 10 2021 The second edition of Stem Cells: Scientific Facts and Fiction provides the non-stem cell expert with an understandable review of the history, current state of affairs, and facts and fiction of the promises of stem cells. Building on success of its award-winning preceding edition, the second edition features new chapters on embryonic and iPS cells and stem cells in veterinary science and medicine. It contains major revisions on cancer stem cells to include new culture models, additional interviews with leaders in progenitor cells, engineered eye tissue, and xeno organs from stem cells, as well as new information on "organs on chips" and adult progenitor cells. In the past decades our understanding of stem cell biology has increased tremendously. Many types of stem cells have been discovered in tissues that everyone presumed were unable to regenerate in adults, the heart and the brain in particular. There is vast interest in stem cells from biologists and clinicians who see the potential for regenerative medicine and future treatments for chronic diseases like Parkinson's, diabetes, and spinal cord lesions, based on the use of stem cells; and from entrepreneurs in biotechnology who expect new commercial applications ranging from drug discovery to transplantation therapies. Explains in straightforward, non-specialist language the basic biology of stem cells and their applications in modern medicine and future therapy Includes extensive coverage of adult and embryonic stem cells both historically and in contemporary practice Richly illustrated to assist in understanding how research is done and the current hurdles to clinical practice

Role of TCTP in Cell Biological and Disease Processes Nov 27 2019 Translationally controlled tumor protein (TCTP), also referred to as HRF or fortilin, is a multifunctional protein, expressed in all eukaryotic organisms from protozoa to humans. TCTP is involved in many basic biological processes, such as cell division, growth, and development. It is therefore not surprising that dysregulation of TCTP occurs in various disease processes, such as cardiovascular, allergic, and immune disorders. TCTP's role in cancer-promoting pathways is well-documented, and the protein is considered a potential target for the design of new anti-cancer strategies. Therefore, an understanding of the core biological functions of TCTP, the mechanisms underlying its cellular regulation, and its involvement in disease processes is important. This book provides a current overview on the basic biological functions of TCTP and on its role in promoting a range of disease processes.

The Immortal Life of Henrietta Lacks Aug 29 2022 #1 NEW YORK TIMES BESTSELLER • “The story of modern medicine and bioethics—and, indeed, race relations—is refracted beautifully, and movingly.”—Entertainment Weekly NOW A MAJOR MOTION PICTURE FROM HBO® STARRING OPRAH WINFREY AND ROSE BYRNE •

ONE OF THE “MOST INFLUENTIAL” (CNN), “DEFINING” (LITHUB), AND “BEST” (THE PHILADELPHIA INQUIRER) BOOKS OF THE DECADE • ONE OF ESSENCE’S 50 MOST IMPACTFUL BLACK BOOKS OF THE PAST 50 YEARS • WINNER OF THE CHICAGO TRIBUNE HEARTLAND PRIZE FOR NONFICTION NAMED ONE OF THE BEST BOOKS OF THE YEAR BY The New York Times Book Review • Entertainment Weekly • O: The Oprah Magazine • NPR • Financial Times • New York • Independent (U.K.) • Times (U.K.) • Publishers Weekly • Library Journal • Kirkus Reviews • Booklist • Globe and Mail Her name was Henrietta Lacks, but scientists know her as HeLa. She was a poor Southern tobacco farmer who worked the same land as her slave ancestors, yet her cells—taken without her knowledge—became one of the most important tools in medicine: The first “immortal” human cells grown in culture, which are still alive today, though she has been dead for more than sixty years. HeLa cells were vital for developing the polio vaccine; uncovered secrets of cancer, viruses, and the atom bomb’s effects; helped lead to important advances like in vitro fertilization, cloning, and gene mapping; and have been bought and sold by the billions. Yet Henrietta Lacks remains virtually unknown, buried in an unmarked grave. Henrietta’s family did not learn of her “immortality” until more than twenty years after her death, when scientists investigating HeLa began using her husband and children in research without informed consent. And though the cells had launched a multimillion-dollar industry that sells human biological materials, her family never saw any of the profits. As Rebecca Skloot so brilliantly shows, the story of the Lacks family—past and present—is inextricably connected to the dark history of experimentation on African Americans, the birth of bioethics, and the legal battles over whether we control the stuff we are made of. Over the decade it took to uncover this story, Rebecca became enmeshed in the lives of the Lacks family—especially Henrietta’s daughter Deborah. Deborah was consumed with questions: Had scientists cloned her mother? Had they killed her to harvest her cells? And if her mother was so important to medicine, why couldn’t her children afford health insurance? Intimate in feeling, astonishing in scope, and impossible to put down, The Immortal Life of Henrietta Lacks captures the beauty and drama of scientific discovery, as well as its human consequences.

Stem Cells in Regenerative Medicine May 02 2020 Here, leading experts in the field provide an updated representation of the landscape of stem cell-based therapies in a wide spectrum of tissue systems and ontogenic stages, from the isolation and culture of stem cells to their actual use in vivo.

Biological & Agricultural Index Jun 14 2021

Stem Cells and Aging Aug 17 2021 Stem Cells and Aging covers what is known about the effect of time and age on the basic units of life, which are the corresponding tissue-specific or adult stem cells. Even though the concept of stem cells was introduced nearly a century ago by Alexander Maximow, modern stem-cell research began in 1963 when James Till, Ernest McCullough and Lou Siminovitch established assays to detect hematopoietic stem cells. In fact, given the importance of the aging-associated diseases, scientists have developed a keen interest in understanding the aging process as they attempt to define the role of dysfunctional stem cells in the aging process. With an aging population worldwide, understanding these age-related stem cell changes at a basic biology level and at the level of their influences for regenerative medicine is of interest and importance. There is increasing evidence that the aging process can have much adverse effects on stem cells. In the modern era, one of the emerging fields in treating human diseases is stem cell research, as stem cells have the remarkable potential to treat a wide range of diseases. Nevertheless, understanding the molecular mechanism involved in aging and deterioration of stem cell function is crucial in developing effective new therapies for aging. Serves as an ideal reference to guide investigators toward valuable answers to the problems of our aging population Addresses the

effect of time and age on human stem cells Includes chapters from contributors exploring the biology of stem cell aging around the globe

The Human Embryonic Stem Cell Debate Feb 20 2022 Discusses the ethical issues involved in the use of human embryonic stem cells in regenerative medicine.

Landmark Papers in Cell Biology Oct 31 2022 Annotation Contains 42 seminal papers illustrating advances in cell biology, along with brief commentaries that place the papers in historical and intellectual context. All papers are studies of eukaryotes, and are grouped according to themes of genome organization and replication, transcription, nuclear envelope and nuclear import, mitosis and cell cycle control, cell membrane and extracellular matrix, protein synthesis and membrane traffic, and cytoskeleton. Lacks a subject index. Gall teaches embryology at the Carnegie Institution. McIntosh teaches cell biology at the University of Colorado. Annotation c. Book News, Inc., Portland, OR (booknews.com).

Should the Government Fund Embryonic Stem Cell Research? Jan 28 2020 Presents articles representing various viewpoints on subjects related to government funding of embryonic stem cell research.

The Ethics of Embryonic Stem Cell Research Jul 04 2020 Embryonic stem cell research holds great promise for biomedical research, but involves the destruction of human embryos. Katrien Devolder explores the tension between the view that embryos should never be deliberately harmed and the view that such research must go forward, and provides an in-depth analysis of major attempts to resolve the problem.

Guidelines for Human Embryonic Stem Cell Research Oct 07 2020 Since 1998, the volume of research being conducted using human embryonic stem (hES) cells has expanded primarily using private funds because of restrictions on the use of federal funds for such research. Given limited federal involvement, privately funded hES cell research has thus far been carried out under a patchwork of existing regulations, many of which were not designed with this research specifically in mind. In addition, hES cell research touches on many ethical, legal, scientific, and policy issues that are of concern to the public. This report provides guidelines for the conduct of hES cell research to address both ethical and scientific concerns. The guidelines are intended to enhance the integrity of privately funded hES cell research by encouraging responsible practices in the conduct of that research.

Morphogenetic Developmental Programs, Stem Cells Jun 26 2022 The creation of the science on stem cells and development of its theoretical bases is a prevalent topic today, taking into account comparative evolutionary cell biology and the cardinal problem of the developmental biology. This allows revealing correlations and studying correlative dependencies of various structures at different levels of biohierarchy. The creation of every science is impossible without the application of methodology. This book examines the system of non-traditional ideas about the nature and role of stem cells in ontogenesis, reproduction and evolution of plants. The main properties of plant stem cells have been developed, which has shown the integrity of morphogenous and reproductive processes at all stages of plant's life cycle.

Stem Cells Sep 29 2022 Since different types of stem cells for therapeutic applications have recently been proposed, this timely volume explores various sources of stem cells for tissue and organ regeneration and discusses their advantages and limitations. Also discussed are pros and cons for using embryonic stem cells, induced pluripotent stem cells, and adult stem cells isolated from postnatal tissues. Different types of adult stem cells for therapeutic applications are also reviewed, including hematopoietic stem cells, epidermal stem cells, endothelial progenitors, neural stem cells, mesenchymal stem cells, and very small embryonic-like stem cells. This book also addresses paracrine effects of stem cells in regenerative medicine that are mediated by extracellular microvesicles and soluble secretome. Finally, potential applications of stem cells in cardiology, gastroenterology, neurology, immunotherapy, and aging are presented. This

is an ideal book for students and researchers working in the stem cell research field.

Philosophy of Stem Cell Biology Oct 26 2019 This examination of stem cell biology from a philosophy of science perspective clarifies the field's central concept, the stem cell, as well as its aims, methods, models, explanations and evidential challenges. Relations to systems biology and clinical medicine are also discussed.

Monitoring Stem Cell Research Oct 19 2021 NOTE: NO FURTHER DISCOUNT FOR THIS PRINT PRODUCT. Significantly reduced price. Overstock List Price. January 2004. Summarizes some of the more interesting and significant recent developments, both in the basic science and medical applications of stem cell research and in the related ethical, legal, and policy discussions. Seeks to shed light on where we are now: ethically, legally, scientifically, and medically, in order that the President, the Congress, and the nation may be better informed as they consider where we should go in the future. Related products: Health & Benefits resources collection can be found here: https://bookstore.gpo.gov/catalog/health-benefits

Stem Cell Research in Asia Feb 29 2020 The great hurry to realise promised cures in stem cell research requires regulation to guarantee bioethical research practices. Yet, increasingly similar national guidelines for stem cell research yields a range of diverging research practices. This book shows how the different rationale of regulation affects stem cell research practices in Asia. In low- and medium income countries such as India and China the advancement of science has a different weight on the national agenda, and the evaluation of scientific research is measured with a different yardstick, depending on the political and national research environment. For developing countries the question of research funding into stem cell research, healthcare, and the donation of embryos, foetuses and oocytes entail different considerations compared to in affluent welfare societies. Moreover, research institutions have different cultural and political histories, so that the meaning of formal guidelines, legislation and social rules may differ according to their various institutional settings. This volume discusses the informal cultures, social conventions and traditions that are crucial to the way in which stem cell research takes place in Asia. This book was originally published as a special issue of New Genetics and Society.

Human Mesenchymal Stem Cells Jul 24 2019 "In Chapter 1, the COVID-19 pandemic and the damage mechanisms on the cellular level which can be ameliorated with the cellular therapies is thoroughly evaluated. Previous and ongoing stem cell clinical trial data from diseases with similar symptoms is gathered. All this accumulated data and current clinical trial results indicate that the cellular therapies could be the most effective treatment option for COVID-19 patients to ameliorate the damaged tissues and save lives. In Chapter 2, the authors examine activated mesenchymal stem cells for stroke repair. Stem Cell treatment has shown recovery in animal models of stroke, indicating an improved regenerative and repair potential. Though stem cells are still being used in clinical trials, there is no evidence that they enhance recovery in ischemic stroke patients. Nevertheless, the multipotent mesenchymal stem has widely been explored for stroke recovery. An'Activated MSC' as a therapeutic alternative to tackling ischemic stroke is proposed, thereby the activation of MSCs by cytokines, growth factors, hypoxia, pharmacological drugs, etc., could be a novel approach to improving stroke patients' responses to receiving MSCs. In Chapter 3, the potential benefits of in vitro culture of therapeutic stem cells in the presence of HB along with the ketogenic diet, whereby higher physiological concentrations of ketone bodies can be achieved in vivo, as an adjuvant to stem cell transplantation is assessed"--

Biomaterials for Cell Delivery Jun 02 2020 The purpose of this book is to summarize key strategies and recent accomplishments in the area of developing cell/biomaterial constructs for regenerative medicine. The first section is a review of the state-of-the-art of biomaterial carriers and is divided into

synthetic and natural materials. A subset of the latter are decellularized organs which retain the structure and some of the biological activities of the target organ. The bulk of the book is devoted to unique problems associated with key tissue and organ targets.

Cell Sources for iPSCs, Volume 7 Mar 12 2021 The series Advances in Stem Cell Biology is a timely and expansive collection of comprehensive information and new discoveries in the field of stem cell biology. Cell Sources for IPSCs, Volume 7 address how important are cancer stem cells within the cancer development, and how can we target those cells to try to stop this disease. Cancer cells depend on cancer stem cells to appear, reactivate and grow. As each cancer is a different disease, this book will discuss the role of cancer stem cells in many different cancers. This book will provide an overview of various cancer such as: melanoma, glioblastoma, thyroid carcinoma, colon cancer, head and neck squamous cell carcinoma, osteosarcoma and more. The volume is written for researchers and scientists in stem cell therapy, cell biology, regenerative medicine and organ transplantation; and is contributed by world-renowned authors in the field. Provides an overview of the fast-moving field of stem cell biology and function, regenerative medicine and therapeutics Covers the following cancers: melanoma, glioblastoma, thyroid carcinoma, colon cancer, and much more Contributed by world-renowned experts in the field

Stem Cells and the Future of Regenerative Medicine Jul 28 2022 Recent scientific breakthroughs, celebrity patient advocates, and conflicting religious beliefs have come together to bring the state of stem cell researchâ€"specifically embryonic stem cell researchâ€"into the political crosshairs. President Bushâ€™s watershed policy statement allows federal funding for embryonic stem cell research but only on a limited number of stem cell lines. Millions of Americans could be affected by the continuing political debate among policymakers and the public. Stem Cells and the Future of Regenerative Medicine provides a deeper exploration of the biological, ethical, and funding questions prompted by the therapeutic potential of undifferentiated human cells. In terms accessible to lay readers, the book summarizes what we know about adult and embryonic stem cells and discusses how to go about the transition from mouse studies to research that has therapeutic implications for people. Perhaps most important, Stem Cells and the Future of Regenerative Medicine also provides an overview of the moral and ethical problems that arise from the use of embryonic stem cells. This timely book compares the impact of public and private research funding and discusses approaches to appropriate research oversight. Based on the insights of leading scientists, ethicists, and other authorities, the book offers authoritative recommendations regarding the use of existing stem cell lines versus new lines in research, the important role of the federal government in this field of research, and other fundamental issues.

Current Protocols in Cytometry Sep 25 2019

Molecular and Cellular Gerontology Sep 17 2021 This work covers a number of relevant aspects of the molecular and cellular biology of ageing, a timely general topic highlighted by the United Nations' having declared 1999 the Year of the Elderly. The papers published here represent a wide range of complementary research areas: molecular and cellular aspects; theories of ageing; molecular basis of the loss of homeostatic maintenance mechanisms; lower and higher model organisms including transgenic animal models; the genetics of human longevity; clinical and molecular aspects of age-related diseases; and integrated systems like brain and immune system aging. It is hoped that the additions to knowledge of the molecular mechanisms of ageing provided by this volume may ultimately lead to the prevention of age-related diseases.

Human Embryonic Stem Cells Jan 22 2022 A discussion of all the key issues in the use of human pluripotent stem cells for treating degenerative diseases or for replacing tissues lost from trauma. On the practical side, the topics range from the problems of

deriving human embryonic stem cells and driving their differentiation along specific lineages, regulating their development into mature cells, and bringing stem cell therapy to clinical trials. Regulatory issues are addressed in discussions of the ethical debate surrounding the derivation of human embryonic stem cells and the current policies governing their use in the United States and abroad, including the rules and conditions regulating federal funding and questions of intellectual property.

Single Cell Analysis Mar 24 2022 Cells are the most fundamental building block of all living organisms. The investigation of any type of disease mechanism and its progression still remains challenging due to cellular heterogeneity characteristics and physiological state of cells in a given population. The bulk measurement of millions of cells together can provide some general information on cells, but it cannot evolve the cellular heterogeneity and molecular dynamics in a certain cell population. Compared to this bulk or the average measurement of a large number of cells together, single-cell analysis can provide detailed information on each cell, which could assist in developing an understanding of the specific biological context of cells, such as tumor progression or issues around stem cells. Single-cell omics can provide valuable information about functional mutation and a copy number of variations of cells. Information from single-cell investigations can help to produce a better understanding of intracellular interactions and environmental responses of cellular organelles, which can be beneficial for therapeutics development and diagnostics purposes. This Special Issue is inviting articles related to single-cell analysis and its advantages, limitations, and future prospects regarding health benefits.

Stem Cell Biology and Tissue Engineering in Dental Sciences May 26 2022 The editors have compiled basic embryology and developmental biology with keen focus on stem cells, basic cell and matrix biology with relevance to tissue regeneration and repair, biomaterials (including nanotechnology) and current applications in various disciplines of dental science.

Stem Cells Aug 24 2019 Stem cells are the building blocks of the body. They can develop into any of the cell types that make up our bodies. During development, they contribute to the formation of the tissues. In the adult, they contribute to homeostasis of the tissues and regeneration after injury. Stem cells carry a lot of hope for the treatment of a broad range of diseases and injuries, spanning from neurological diseases and injuries, like Alzheimer's disease, Parkinson's disease and spinal cord injuries, to diabetes, genetic diseases, graft-versus-host diseases, eye, heart and liver diseases, inflammatory and autoimmune disorders, and cancers. Stem cell research is therefore as important for our understanding of development, physio- and pathology of the body, as for therapy. 'Stem Cells' aims at providing an overview and in depth analysis of recent developments in stem cell research and therapy. It is composed of recently published review articles that encompass the field of stem cell research and regenerative medicine. All the articles went through peer-review process.

Stem Cell Biology and Regenerative Medicine in Ophthalmology Mar 31 2020 Patient specific and disease specific stem cell lines have already introduced groundbreaking advances into the research and practice of ophthalmology. This volume provides a comprehensive and engaging overview of the latest innovations in the field. Twelve chapters discuss the fastest growing areas in ophthalmological stem cell research, from disease modelling, drug screening and gene targeting to clinical genetics and regenerative treatments. Innovative results from stem cell research of the past decade are pointing the way toward practicable treatments for retinitis pigmentosa, age related macular degeneration, and Stargardt disease. What future directions will stem cell research take? Researchers, graduate students, and fellows alike will find food for thought in this insightful guide tapping into the collective knowledge of leaders in the field. Stem Cells in Ophthalmology is part of the Stem Cells in Regenerative Medicine series dedicated to

discussing current challenges and future directions in stem cell research.

Current Protocols in Stem Cell Biology May 14 2021 Published in affiliation with the International Society for Stem Cell Research (ISSCR), Current Protocols in Stem Cell Biology covers the most fundamental protocols and methods in the rapidly growing field of Stem Cell Biology. With tested and proven protocols from laboratories around the world, Current Protocols in Stem Cell Biology provides methods and insights that will enhance the progress of global research. Current Protocols in Stem Cell Biology is divided into three parts: Embryonic Stem Cells - covers methods for isolation of stem cells from a variety of model organisms and humans, characterization of these cells and the undifferentiated state, induction of differentiation into cells of the mesodermal, endodermal, ectodermal and extraembryonic lineages, and molecular and functional characterization of the differentiated state. Adult Stem Cells - includes the isolation of progenitor stem cells from differentiated tissues, their characterization, and differentiation. Genetic Manipulation of Stem Cells - provides tools for manipulating the genetic content of stem cells and for marking stem cells. Updated continually, this product will add new methods and ideas as the field expands. It employs the standardized presentation and format that has made Current Protocols the most respected source of methods for twenty years.

Mesenchymal Stem Cell Derived Exosomes Aug 05 2020 Mesenchymal stem cell-derived exosomes are at the forefront of research in two of the most high profile and funded scientific areas – cardiovascular research and stem cells. Mesenchymal Stem Cell Derived Exosomes provides insight into the biofunction and molecular mechanisms, practical tools for research, and a look toward the clinical applications of this exciting phenomenon which is emerging as an effective diagnostic. Primarily focused on the cardiovascular applications where there have been the greatest advancements toward the clinic, this is the first compendium for clinical and biomedical researchers who are interested in integrating MSC-derived exosomes as a diagnostic and therapeutic tool. Introduces the MSC-exosome mediated cell-cell communication Covers the major functional benefits in current MSC-derived exosome studies Discusses strategies for the use of MSC-derived exosomes in cardiovascular therapies

Stem Cell Manufacturing Nov 07 2020 Stem Cell Manufacturing discusses the required technologies that enable the transfer of the current laboratory-based practice of stem cell tissue culture to the clinic environment as therapeutics, while concurrently achieving control, reproducibility, automation, validation, and safety of the process and the product. The advent of stem cell research unveiled the therapeutic potential of stem cells and their derivatives and increased the awareness of the public and scientific community for the topic. The successful manufacturing of stem cells and their derivatives is expected to have a positive impact in the society since it will contribute to widen the offer of therapeutic solutions to the patients. Fully defined cellular products can be used to restore the structure and function of damaged tissues and organs and to develop stem cell-based cellular therapies for the treatment of cancer and hematological disorders, autoimmune and other inflammatory diseases and genetic disorders. Presents the first ‘Flowchart‘ of stem cell manufacturing enabling easy understanding of the various processes in a sequential and coherent manner Covers all bioprocess technologies required for the transfer of the bench findings to the clinic including the process components: cell signals, bioreactors, modeling, automation, safety, etc. Presents comprehensive coverage of a true multidisciplinary topic by bringing together specialists in their particular area Provides the basics of the processes and identifies the issues to be resolved for large scale cell culture by the bioengineer Addresses the critical need in bioprocessing for the successful delivery of stem cell technology to the market place by involving professional engineers in sections of the book

Strengthening Forensic Science in the United States Feb 08 2021 Scores of talented and dedicated people serve the forensic science community, performing vitally important work. However, they are often constrained by lack of adequate resources, sound policies, and national support. It is clear that change and advancements, both systematic and scientific, are needed in a number of forensic science disciplines to ensure the reliability of work, establish enforceable standards, and promote best practices with consistent application. Strengthening Forensic Science in the United States: A Path Forward provides a detailed plan for addressing these needs and suggests the creation of a new government entity, the National Institute of Forensic Science, to establish and enforce standards within the forensic science community. The benefits of improving and regulating the forensic science disciplines are clear: assisting law enforcement officials, enhancing homeland security, and reducing the risk of wrongful conviction and exoneration. Strengthening Forensic Science in the United States gives a full account of what is needed to advance the forensic science disciplines, including upgrading of systems and organizational structures, better training, widespread adoption of uniform and enforceable best practices, and mandatory certification and accreditation programs. While this book provides an essential call-to-action for congress and policy makers, it also serves as a vital tool for law enforcement agencies, criminal prosecutors and attorneys, and forensic science educators.

Current Progress in Mesenchymal Stem/Stromal Cell Research Dec 21 2021

Human Naïve Pluripotent Stem Cells Dec 29 2019 This volume provides readers with a comprehensive collection of methods to guide them on how to generate, characterize, and use naïve human pluripotent stem cells (hPSCs). The chapters in this book cover topics such as three predominant routes to generate naïve hPSC lines; methods to differentiate naïve hPSCs into specialized cell types; and techniques to characterize naïve hPSCs using key molecular landmarks that benchmark and quality control the cell lines. 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, Human Naïve Pluripotent Stem Cells: Methods and Protocols is a valuable resource for novice and expert researchers who are looking to learn more or expand their research in this developing field.

Encyclopedia of Stem Cell Research Apr 24 2022 What is a stem cell? We have a basic working definition, but the way we observe a stem cell function in a dish may not represent how it functions in a living organism. Only this is clear: Stem cells are the engine room of multicelluar organisms—both plants and animals. However, controversies, breakthroughs, and frustration continue to swirl in eternal storms through this rapidly moving area of research. But what does the average person make of all this, and how can an interested scholar probe this vast sea of information? The Encyclopedia of Stem Cell Research provides a clear understanding of the basic concepts in stem cell biology and addresses the politics, ethics, and challenges currently facing the field. While stem cells are exciting alone, they are also clearly fueling the traditional areas of developmental biology and the field of regenerative medicine. These two volumes present more than 320 articles that explore major topics related to the emerging science of stem cell research and therapy. Key Features · Describes the different types of stem cells that have been reported so far and, where possible, tries to explain for each age, tissue, and species what is known about the biology of the cells and their history · Captures a strong sense of stem cell biology as it stands today and provides the reader with a reference manual to probe the mysteries of the field · Considers various religious, legal, and political perspectives · Includes selected reprints of major journal articles that pertain to the milestones achieved in stem cell research · Elucidates stem cell

terminology for the nonscientist. Key Themes · Biology · Clinical Trials · Countries · Diseases · Ethics · History and Technology · Industry · Institutions · Legal · Organizations · People · Politics · Religion · States With contributions from scholars and institutional experts in the stem cell and social sciences, this Encyclopedia provides a primarily nonscientific resource to understanding the complexities of stem cell research for academic and public libraries.

Germline Stem Cells Apr 12 2021 In this comprehensive and cutting-edge book, leading experts explore the parameters that define germline stem cells and the mechanisms that regulate the cell behavior in order to better isolate, characterize and maintain them. The volume begins by providing protocols for germline stem cell identification and regulation in model organisms, and concludes with detailed chapters covering current techniques involving in vitro culture and the applications of the cells.