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K-12 STEM Education: Breakthroughs in Research and Practice Academic Press
Addressing the regulation of the eukaryotic cell cycle, this book brings together experts to cover all aspects of the field, clearly and unambiguously, delineating what is commonly accepted in the field from the problems that remain unsolved. It will thus appeal to a large audience: basic and clinical scientists involved in the study of cell growth, differentiation, senescence, apoptosis, and cancer, as well as graduates and postgraduates.

Landmark Papers in Cell Biology IGI Global

Tumor progression is driven by mutations that confer growth advantages to different subpopulations of cancer cells. As a tumor grows, these subpopulations expand, accumulate new mutations, and are subjected to selective pressures from the environment, including anticancer interventions. This process, termed clonal evolution, can lead to the emergence of therapy-resistant tumors and poses a major challenge for cancer eradication efforts. Written and edited by experts in the field, this collection from Cold Spring Harbor Perspectives in Medicine examines cancer progression as an evolutionary process and explores how this way of looking at cancer may lead to more effective strategies for managing and treating it. The contributors review efforts to characterize the subclonal architecture and dynamics of tumors, understand the roles of chromosomal instability, driver mutations, and mutation order, and determine how cancer cells respond to selective pressures imposed by anticancer agents, immune cells, and other components of the tumor microenvironment. They compare cancer evolution to organismal evolution and describe how ecological theories and mathematical models are being used to understand the complex dynamics between a tumor and its microenvironment during cancer progression. The authors also discuss improved methods to monitor tumor evolution (e.g., liquid biopsies) and the

development of more effective strategies for managing and treating cancers (e.g., immunotherapies). This volume will therefore serve as a vital reference for all cancer biologists as well as anyone seeking to improve clinical outcomes for patients with cancer.

Oncofertility CSHL Press

NEW YORK TIMES BESTSELLER The revolutionary book coauthored by the Nobel Prize winner who discovered telomerase and telomeres' role in the aging process and the health psychologist who has done original research into how specific lifestyle and psychological habits can protect telomeres, slowing disease and improving life. Have you wondered why some sixty-year-olds look and feel like forty-year-olds and why some forty-year-olds look and feel like sixty-year-olds? While many factors contribute to aging and illness, Dr. Elizabeth Blackburn discovered a biological indicator called telomerase, the enzyme that replenishes telomeres, which protect our genetic heritage. Dr. Blackburn and Dr. Elissa Epel's research shows that the length and health of one's telomeres are a biological underpinning of the long-hypothesized mind-body connection. They and other scientists have found that changes we can make to our daily habits can protect our telomeres and increase our health spans (the number of years we remain healthy, active, and disease-free). THE TELOMERE EFFECT reveals how Blackburn and Epel's findings, together with research from colleagues around the world, cumulatively show that sleep quality, exercise, aspects of diet, and even certain chemicals profoundly affect our telomeres, and that chronic stress, negative thoughts, strained relationships, and even the wrong neighborhoods can eat away at them. Drawing from this scientific body of knowledge, they share lists of foods and suggest amounts and types of exercise that are healthy for our telomeres, mind tricks you can use to protect yourself from stress, and information about how to protect your children against developing shorter telomeres, from pregnancy through adolescence. And they describe how we can improve our health spans at the community level, with neighborhoods characterized by trust, green spaces, and safe streets. THE TELOMERE EFFECT will make you reassess how you live your life on a day-to-day basis. It is the first book to explain how we age at a cellular level and how we can make simple changes to keep our chromosomes and cells healthy, allowing us to stay disease-free longer and live more vital and meaningful lives.

Multiple Myeloma and Other Plasma Cell Neoplasms Page Publishing Inc

Education is vital to the progression and sustainability of society. By developing effective learning

programs, this creates numerous impacts and benefits for future generations to come. K-12 STEM Education: Breakthroughs in Research and Practice is a pivotal source of academic material on the latest trends, techniques, technological tools, and scholarly perspectives on STEM education in K-12 learning environments. Including a range of pertinent topics such as instructional design, online learning, and educational technologies, this book is an ideal reference source for teachers, teacher educators, professionals, students, researchers, and practitioners interested in the latest developments in K-12 STEM education.

Research Awards Index NSTA Press

The Cell Cycle and Cancer Advanced Biology Lab Investigations Advanced Level Biology Lab Investigations

Cell Cycle Regulation BoD – Books on Demand

Holland-Frei Cancer Medicine, Ninth Edition, offers a balanced view of the most current knowledge of cancer science and clinical oncology practice. This all-new edition is the consummate reference source for medical oncologists, radiation oncologists, internists, surgical oncologists, and others who treat cancer patients. A translational perspective throughout, integrating cancer biology with cancer management providing an in depth understanding of the disease. An emphasis on multidisciplinary, research-driven patient care to improve outcomes and optimal use of all appropriate therapies Cutting-edge coverage of personalized cancer care, including molecular diagnostics and therapeutics Concise, readable, clinically relevant text with algorithms, guidelines and insight into the use of both conventional and novel drugs Includes free access to the Wiley Digital Edition providing search across the book, the full reference list with web links, illustrations and photographs, and post-publication updates

The Telomere Effect Springer Science & Business Media

CliffsNotes AP Biology 2021 Exam gives you exactly what you need to score a 5 on the exam: concise chapter reviews on every AP Biology subject, in-depth laboratory investigations, and full-length model practice exams to prepare you for the May 2021 exam. Revised to even better reflect the new AP Biology exam, this test-prep guide includes updated content tailored to the May 2021 exam. Features of the guide focus on what AP Biology test-takers need to score high on the exam: Reviews of all subject areas In-depth coverage of the all-important laboratory investigations Two full-length model practice AP Biology exams Every review chapter includes review questions and answers to pinpoint problem areas.

CliffsNotes AP Biology 2021 Exam Academic Press

Are you interested in using argument-driven inquiry for high school lab instruction but just aren't sure how to do it? You aren't alone. This book will provide you with both the information and instructional materials you need to start using this method right away. Argument-Driven Inquiry in Biology is a one-stop source of expertise, advice, and investigations. The book is broken into two basic parts: 1. An introduction to the stages of argument-driven inquiry—from question identification, data analysis, and argument development and evaluation to double-blind peer review and report revision. 2. A well-organized series of 27 field-tested labs that cover molecules and organisms, ecosystems, heredity, and biological evolution. The investigations are designed to be more authentic scientific experiences than traditional laboratory activities. They give your students an opportunity to design their own methods, develop models, collect and analyze data, generate arguments, and critique claims and evidence. Because the authors are veteran teachers, they designed Argument-Driven Inquiry in Biology to be easy to use and aligned with today's standards. The labs include reproducible student pages and teacher notes. The investigations will help your students learn the core ideas, crosscutting concepts, and scientific practices found in the Next Generation Science Standards. In addition, they offer ways for students to develop the disciplinary skills outlined in the Common Core State Standards. Many of today's teachers—like you—want to find new ways to engage students in scientific practices and help students learn more from lab activities. Argument-

Driven Inquiry in Biology does all of this even as it gives students the chance to practice reading, writing, speaking, and using math in the context of science.

Molecular Biology of the Cell HARCOURT EDUCATION COMPANY

Concepts of Biology is designed for the single-semester introduction to biology course for non-science majors, which for many students is their only college-level science course. As such, this course represents an important opportunity for students to develop the necessary knowledge, tools, and skills to make informed decisions as they continue with their lives. Rather than being mired down with facts and vocabulary, the typical non-science major student needs information presented in a way that is easy to read and understand. Even more importantly, the content should be meaningful. Students do much better when they understand why biology is relevant to their everyday lives. For these reasons, Concepts of Biology is grounded on an evolutionary basis and includes exciting features that highlight careers in the biological sciences and everyday applications of the concepts at hand. We also strive to show the interconnectedness of topics within this extremely broad discipline. In order to meet the needs of today's instructors and students, we maintain the overall organization and coverage found in most syllabi for this course. A strength of Concepts of Biology is that instructors can customize the book, adapting it to the approach that works best in their classroom. Concepts of Biology also includes an innovative art program that incorporates critical thinking and clicker questions to help students understand--and apply--key concepts.

Lab Investigations for Grades 9-12 The Cell Cycle and Cancer Advanced Biology Lab

Investigations Advanced Level Biology Lab Investigations This manual contains 24 labs and is aligned with the first year college/advanced placement level high school biology curriculum, standards, and science practices. There are eight main lab investigations (two for each AP® Bio Big Idea), each including a student guided inquiry. 1. DIFFUSION AND OSMOSIS Surface area and cell size, modeling, osmosis in live water plant cells 2. CHANGES WITHIN POPULATIONS SPTC taste test global analysis, simulations of changes within populations (Equilibrium, Natural Selection, Genetic Drift); mathematical modeling of allele frequencies within a population 3. EVOLUTIONARY RELATIONSHIPS Cladogram construction, biochemical analyses of gene and protein sequence % similarities and differences; BLAST database tutorial and cladogram construction for comparing evolutionary relationships; Entrez Gene database tutorial comparing normal gene sequences to chromosomal aberrations in human diseases 4. MITOSIS and MEIOSIS Loss of cell cycle control analysis in cancer cells using human karyotypes; environmental abiotic effects on mitotic rates and data analysis for significance; student guided inquiry on environmental effects on mitosis; and crossing over in meiosis demonstrating increased genetic variability in subsequent generations 5. ENZYME ACTIVITY Catalase enzyme and breakdown of toxins in the liver; enzyme specificity using lactase; enzyme rates of reaction assay and baseline; effects of pH on enzymatic activity; and student guided inquiry for other potential environmental effects on enzyme activity 6. PHOTOSYNTHESIS AND CELLULAR RESPIRATION Predictions on effect of different abiotic conditions on photosynthesis and the effect of exercise on cellular respiration waste product production rates; measuring photosynthesis and cellular respiration rates using the Floating Leaf Disk technique 7. BIOTECHNOLOGY - BACTERIAL TRANSFORMATION Biotechnology simulation of transforming the human insulin-making gene into a bacterial plasmid; bacterial transformation of the jellyfish gene for green fluorescence into E.coli; transformation efficiency calculations; and student guided inquiry of the newly transformed bacterial colonies 8. ENERGY DYNAMICS Environmental impact of eating at lower trophic levels; energy transfer and productivity lab using yeast fermentation of corn sugar into ethanol and carbon dioxide; and student guided inquiry on variables that could potentially increase the rate of fermentation for biofuel production. The Immortal Life of Henrietta Lacks

Fission yeast are unicellular, rod-shaped fungi that divide by medial fission. Studies using fission yeast were

instrumental in identifying fundamental mechanisms that govern cell division, differentiation, and epigenetics, to name but a few. Their rapid growth rate, genetic malleability, and similarities to more complex eukaryotes continue to make them excellent subjects for many biochemical, molecular, and cell biological studies. This laboratory manual provides an authoritative collection of core experimental procedures that underpin modern fission yeast research. The contributors describe basic methods for culturing and genetically manipulating fission yeast, synchronization strategies for probing the cell cycle, technologies for assessing proteins, metabolites, and cell wall constituents, imaging methods to visualize subcellular structures and dynamics, and protocols for investigating chromatin and nucleic acid metabolism. Modifications to techniques commonly used in related species (e.g., budding yeast) are noted, as are useful resources for fission yeast researchers, including various databases and repositories. The well-studied fission yeast *Schizosaccharomyces pombe* is the focus throughout, but the emerging model *S. japonicus*-a larger, dimorphic species with several desirable characteristics-is also covered. This manual is an important reference for existing fission yeast laboratories and will serve as an essential start-up guide for those working with fission yeast for the first time.

The Physics of Cancer Grand Central Publishing

This book is a comprehensive source of up-to-date information on plasma cell neoplasms. Key features include the provision of new criteria for the diagnosis of symptomatic multiple myeloma requiring treatment and the description of novel therapies for myeloma and other plasma cell neoplasms that have only very recently been licensed by the U.S. Food and Drug Administration. Examples include lenalidomide as first-line therapy, panobinostat in combination with bortezomib plus dexamethasone for relapsed/refractory myeloma, ibrutinib for Waldenström's macroglobulinemia, and new therapeutic regimens for systemic amyloidosis and POEMS syndrome. Information is also provided on drug combinations that have shown encouraging results and are very near to approval. Other important aspects covered in the book are the role of different imaging modalities in workup and the significance of newly acquired data relating to prognosis and minimal residual disease. Readers will find *Multiple Myeloma and Other Plasma Cell Neoplasms* to be a rich source of knowledge that will be invaluable in improving patient management.

A Biography of Cancer Elsevier

In the past, pregnancy after cancer was largely unheard of. Today, it is increasingly a possibility. Oncofertility has emerged as an interdisciplinary field bridging biomedical and social sciences, and examining issues regarding an individual's fertility options, choice and goals in light of cancer diagnosis, treatment and survivorship. Written by leaders in this evolving field, the volume covers various aspects: medical, ethical and social.

The Cell in Development and Inheritance Taylor & Francis US

Methods in Toxicology, Volume 2: Mitochondrial Dysfunction provides a source of methods, techniques, and experimental approaches for studying the role of abnormal mitochondrial function in cell injury. The book discusses the methods for the preparation and basic functional assessment of mitochondria from liver, kidney, muscle, and brain; the methods for assessing mitochondrial dysfunction in vivo and in intact organs; and the structural aspects of mitochondrial dysfunction are addressed. The text also describes chemical detoxification and metabolism as well as specific metabolic reactions that are especially important targets or indicators of damage. The methods for measurement of alterations in fatty acid and phospholipid metabolism and for the analysis and manipulation of oxidative injury and antioxidant systems are also considered. The book further tackles additional methods on mitochondrial energetics and transport processes; approaches for assessing impaired function of mitochondria; and genetic and developmental aspects of mitochondrial disease and toxicology. The text also looks into mitochondrial DNA synthesis, covalent binding to mitochondrial DNA, DNA repair, and mitochondrial dysfunction in the context of developing individuals and cellular differentiation. Microbiologists, toxicologists, biochemists, and

molecular pharmacologists will find the book invaluable.

When Cells Break the Rules and Hijack Their Own Planet Symposium Proceedings

Microfluidics in Cell Biology Part B: Microfluidics in Single Cells, Volume 147, a new volume in the *Methods in Cell Biology* series, continues the legacy of this premier serial with quality chapters authored by leaders in the field. Unique to this updated volume are three sections on microfluidics in various single cell models, including microfluidics in micro-organisms, microfluidics for cell culture and cell sorting of mammalian cells, and microfluidics for cell migration. Specific sections in this latest release include Temperature control and drug delivery for cell division cycle control in fission yeast H₂O₂ stress response in budding yeast, Antibiotic resistance in bacteria, Metabolism in bacteria, Fluidized beds for bacterial sorting and amplification, Microfluidics for cell culture and cell sorting of mammalian cells, Hydrogel microwells, Immune cells migration in complex environments, Neutrophils migration in health and disease, Cell guidance by physical cues, Stable gradients in gels of extracellular matrix for cancer cell migration, and more. Contains contributions from experts in the field from across the world Covers a wide array of topics on both mitosis and meiosis Includes relevant, analysis based topics

Revolutionizing K-12 Blended Learning through the i² Flex Classroom Model Morton Publishing Company

This work has been called the single most influential treatise on cytology of the 20th century.

Methods in Toxicology Crown

Ideal for allied health and pre-nursing students, Alcamos *Fundamentals of Microbiology, Body Systems Edition*, retains the engaging, student-friendly style and active learning approach for which award-winning author and educator Jeffrey Pommerville is known. It presents diseases, complete with new content on recent discoveries, in a manner that is directly applicable to students and organized by body system. A captivating art program, learning design format, and numerous case studies draw students into the text and make them eager to learn more about the fascinating world of microbiology.

Essential Cell Biology Springer

This book provides an overview of the stages of the eukaryotic cell cycle, concentrating specifically on cell division for development and maintenance of the human body. It focusses especially on regulatory mechanisms and in some instances on the consequences of malfunction.

Cell Cycle Control Springer Science & Business Media

Essential Cell Biology provides a readily accessible introduction to the central concepts of cell biology, and its lively, clear writing and exceptional illustrations make it the ideal textbook for a first course in both cell and molecular biology. The text and figures are easy-to-follow, accurate, clear, and engaging for the introductory student. Molecular detail has been kept to a minimum in order to provide the reader with a cohesive conceptual framework for the basic science that underlies our current understanding of all of biology, including the biomedical sciences. The Fourth Edition has been thoroughly revised, and covers the latest developments in this fast-moving field, yet retains the academic level and length of the previous edition. The book is accompanied by a rich package of online student and instructor resources, including over 130 narrated movies, an expanded and updated Question Bank. *Essential Cell Biology, Fourth Edition* is additionally supported by the Garland Science Learning System. This homework platform is designed to evaluate and improve student performance and allows instructors to select assignments on specific topics and review the performance of the entire class, as well as individual students, via the instructor dashboard. Students receive immediate feedback on their mastery of the topics, and will be better prepared for lectures and classroom discussions. The user-friendly system provides a convenient way to engage students while assessing progress. Performance data can be used to tailor classroom discussion, activities, and lectures to address students' needs precisely and efficiently. For more information and sample material, visit

<http://garlandscience.rocketmix.com/>.

Using Cancer to Make Cellular Reproduction Rigorous and Relevant Garland Science

Mitosis/Cytokinesis provides a comprehensive discussion of the various aspects of mitosis and cytokinesis, as studied from different points of view by various authors. The book summarizes work at different levels of organization, including phenomenological, molecular, genetic, and structural levels. The book is divided into three sections that cover the premeiotic and premitotic events; mitotic mechanisms and approaches to the study of mitosis; and mechanisms of cytokinesis. The authors used a uniform style in presenting the concepts by including an overview of the field, a main theme, and a conclusion so that a broad range of biologists could understand the concepts. This volume also explores the potential developments in the study of mitosis and cytokinesis, providing a background and perspective into research on mitosis and cytokinesis that will be invaluable to scientists and advanced students in cell biology. The book is an excellent reference for students, lecturers, and research professionals in cell biology, molecular biology, developmental biology, genetics, biochemistry, and physiology.

Advanced Level Biology Lab Investigations Springer Science & Business Media

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).